December

WRNY

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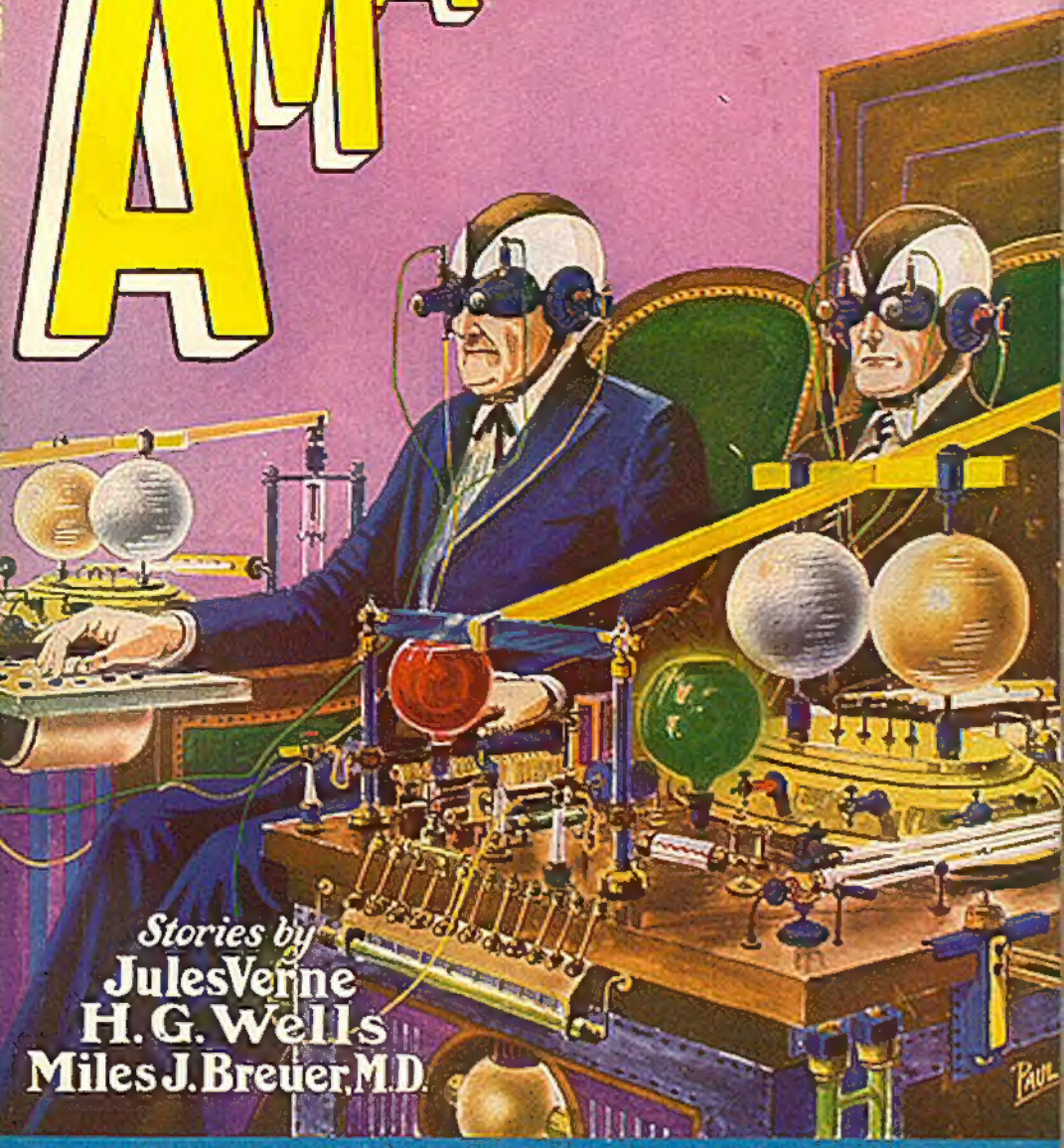
AMAZING STORIES

HUGO GERNSBACK
EDITOR



Stories by
Jules Verne
H. G. Wells
Miles J. Breuer, M.D.

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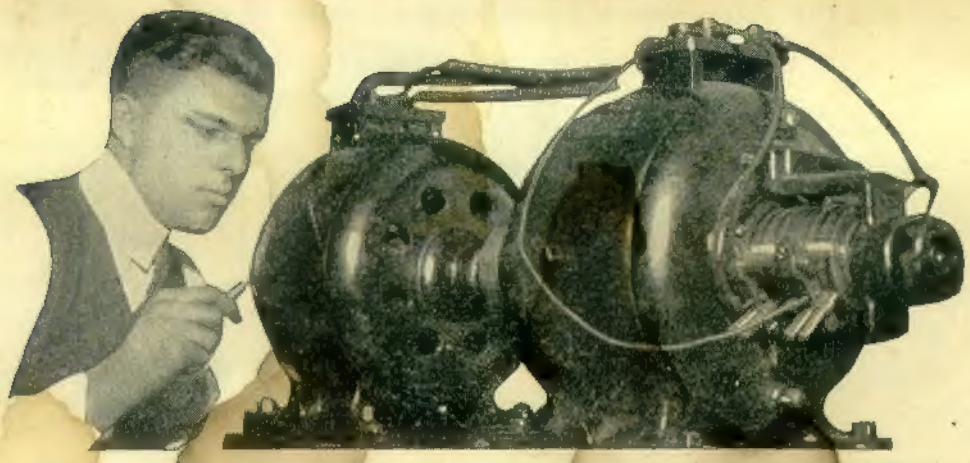

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JULES VERNE'S TOMBSTONE AT AMIENS PORTRAYING HIS IMMORTALITY

AMAZING STORIES

Vol. 2 No. 9
December, 1927

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Owners of Broadcast Station WRNY

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Our Cover

This month shows a scene from "Below the Infra Red" by George Paul Bauer, in which the scientist and his friend, with headgear adjusted, are sitting before the great mass of shining apparatus, which not only changes the attunement of the optic and auditory organs, but raises the vibration of the entire physical body to such a degree as to enable the human body to pass into a higher plane.

In Our Next Issue:

THE PSYCHOLOGICAL SOLUTION, by A. Hyatt Verrill. Here our well-known author presents a scientific mystery story in which pure reasoning and deductions are used to solve the most baffling murder case of the decade.

THE REVOLT OF THE PEDESTRIANS, by David H. Keller, M.D. What will happen to us in centuries to come if we continue to ride in automobiles? It is a question which we may well ask ourselves. Our new author, who is himself a doctor, gives us a vivid picture with absorbing detail of the not unlikely results. Signs of the truth of parts of the story can be seen already in the larger cities.

THE FOURTEENTH EARTH, by Walter Kateley. Scientists have steadfastly maintained that there must be other inhabited planes besides our own. This author has woven a charming tale around his idea where such planes might be.

ROBUR THE CONQUEROR, by Jules Verne (A serial in 2 parts) Part II. In his attempt to convince the two officers of the advocates of the "lighter-than-air," Robur and his crew and prisoners met with daring experiences, thrilling situations and breath-taking escapades. Still they were unconvinced, until the very end, when doubt was no longer possible. Jules Verne excels in this story.

And other stories.

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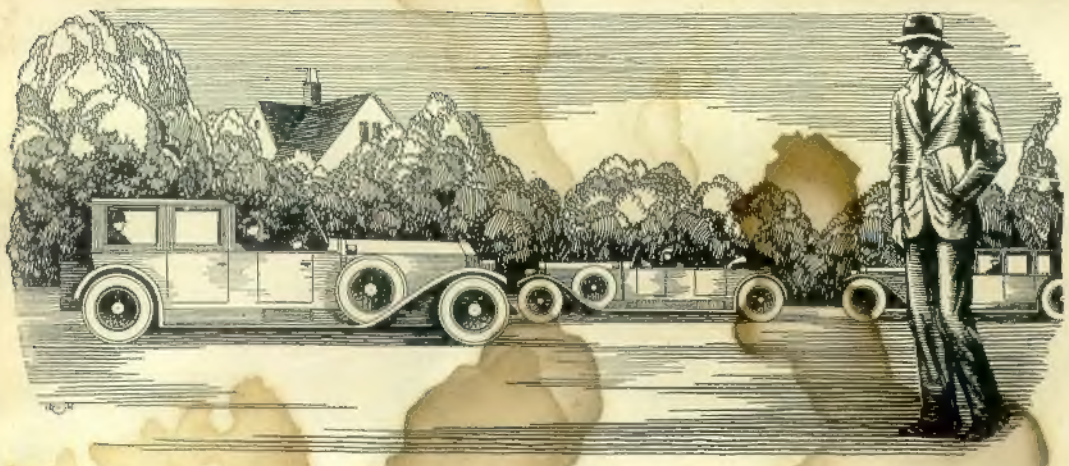

Many times in the old days, while I trudged home after work to save carfare, I used to gaze enviously at the shining cars gliding by me, the prosperous men and women within. Little did I think that inside of a year, I, too, should have my own car, a decent bank account, the good things of life that make it worth living.

I Thought Success Was For Others

Believe It Or Not, Just Twelve Months Ago I Was Next Thing To "Down-and-Out"

TODAY I'm sole owner of the fastest growing Radio store in town. And I'm on good terms with my banker, too—not like the old days only a year ago, when often I didn't have one dollar to knock against another in my pocket. My wife and I live in the snuggest little home you ever saw, right in one of the best neighborhoods. And to think that a year ago I used to dodge the landlady when she came to collect the rent for the little bedroom I called "home"!

It all seems like a dream now, as I look back over the past twelve short months, and think how discouraged I was then, at the "end of a blind alley." I thought I never had had a good chance in my life, and I thought I never would have one. But it was waking up that I needed, and here's the story of how I got it.

I WAS a clerk, working at the usual miserable salary such jobs pay. Somehow I'd never found any way to get into a line where I could make good money.

Other fellows seemed to find opportunities. But—much as I wanted the good things that go with success and a decent income—all the really well-paid vacancies I ever heard of seemed to be out of my line—to call for some kind of knowledge I didn't have.

And I wanted to get married. A fine situation, wasn't it? Mary would have agreed to try it—but it wouldn't have been fair to her.

Mary had told me, "You can't get ahead where you are. Why don't you get into another line of work, somewhere that you can advance?"

"That's fine, Mary," I replied, "but *what* line? I've always got my eyes open for a better job, but I never seem to hear of a really good job that I can handle." Mary didn't seem to be satisfied with the answer, but I didn't know what else to tell her.

It was on the way home that night that I stopped off in the neighborhood drug store, where I overheard a scrap of conversation about myself. A few burning words that were the cause of the turning point in my life!

With a hot flush of shame I turned and left the store, and walked rapidly home. So that was what my neighbors—the people who knew me best—really thought of me!

"Bargain counter sheik—look how that suit fits," one fellow had said in a low voice. "Bet he hasn't got a dollar in those pockets." "Oh, it's just 'Useless' Anderson," said another. "He's got a wish-bone where his back-bone ought to be."

As I thought over the words in deep humiliation, a sudden thought made me catch my breath. Why had Mary been so dissatisfied with my answer that "I hadn't had a chance?" *Did Mary secretly think that too?* And after all, wasn't it *true* that I had a "wish-bone" where my back-bone ought to be? Wasn't that why I never had a "chance" to get ahead? It was true, only too true—and it had taken this cruel blow to my self-esteem to make me see it.

With a new determination I thumbed the pages of a magazine on the table, searching for an advertisement that I'd seen many times but passed up without thinking, an advertisement telling of big opportunities for trained men to succeed in the great new Radio field. With the advertisement was a coupon offering a big free book full of information. I sent the coupon in, and in a few days received a handsome 64-page book, printed in two colors, telling all about the opportunities in the Radio field and how a man can prepare quickly and easily at home to take advantage of these opportunities. I read the book carefully, and when I finished it I made my decision.

WHAT'S happened in the twelve months since that day, as I've already told you, seems almost like a dream to me now. For ten of those twelve months, *I've had a Radio business of my own!* At first, of course, I started it as a little proposition on the side, under the guidance of the National Radio Institute, the outfit that gave me my Radio training. It wasn't long before I was getting so much to do in the Radio line that I quit my measly little clerical job, and devoted my full time to my Radio business.

Since that time I've gone right on up, always under the watchful guidance of my friends at the National Radio Institute. They would have given me just as much help, too, if I had wanted to follow some other line of Radio besides building my own retail business—such as broadcasting, manufacturing, experimenting, sea operating, or any one of the score of lines they prepare you for. And to think that until that day I sent for their eye-opening book, I'd been wailing "I never had a chance!"

NOW I'm making real money. I drive a good-looking car of my own. Mary and I don't own the house in full yet, but I've made a substantial down payment, and I'm not straining myself any to meet the installments.

Here's a real tip. You may not be as bad off as I was. But, think it over—are you satisfied? Are you making enough money, at work that you like? Would you sign a contract to stay where you are now for the next ten years, making the same money? If not, you'd better be *doing* something about it instead of drifting.

This new Radio game is a live-wire field of golden rewards. The work, in any of the 20 different lines of Radio, is fascinating, absorbing, well paid. The National Radio Institute—oldest and largest Radio home-study school in the world—will train you inexpensively in your own home to know Radio from A to Z and to increase your earnings in the Radio field.

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VOLUME 2

AMAZING STORIES

THE MAGAZINE OF SCIENTIFICTION

December, 1927
No. 9

HUGO GERNSBACK, *Editor*
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Editorial and General Offices: 230 Fifth Avenue, New York, N. Y.

Extravagant Fiction Today - - - - - - - - - - Cold Fact Tomorrow

STRANGE FACTS

By HUGO GERNSBACK

IT is a part and parcel of the makeup of the average human to be most irritated by something that is unknown to him. If we traced this feeling to its lair, we would perhaps have need of a psychologist for the ultimate explanation. It will usually be found that the more sensitive the person in question the greater the irritation. This type of person is usually easily offended because it seems an insult to his mentality that a certain fact exists anywhere in the universe of which he has no knowledge. Often, also, the more highly learned a person is, the greater the irritation. Thus, when a scientist comes along with something totally unorthodox—some new fact which may not be discernible as fact immediately—his fellow scientists are usually the ones who become most irritated and loud in their denunciations. Thus it was with Galileo, when he attempted to prove that the earth did not stand still, but spun around on its axis—a monstrous piece of "nonsense" in those days. It not only went against the grain and all inborn instinct, but against the Church as well.

It was, and still is true in the case of Einstein and his Theory of Relativity. Most of these theories have been proven after many years of wrangling among scientists and mathematicians, yet even today most of them are confirmed doubters.

This is true, also, of a certain class of AMAZING STORIES scientifiction readers, a class, by the way, which we are happy to state, seems to be in the minority. This class is always ready to tear and claw at any author who comes along with a new idea which, for the time being, may be contrary to fact, although it may still lie within the realm of science. Usually when such a scientifiction story is published, the howl raised by this class of readers is long and lusty, and most vitriolic. They give no quarter, and are loud in their denunciations, and go to great lengths in venting their opinions as to why such and such statement could never come true. Yet, before the ink is dry, it has happened that a scientifiction prediction has become a fact. Undaunted, however, the Doubting Thomases are inclined to close their eyes and minds against every fact and glibly say, "We don't believe it anyhow." The old story of "There ain't no such animal."

As has often been said, fact is stranger than fiction. If, for instance, we had published a scientifiction tale whereby a musician, just by waving his hands in the air, without any physical contacts of any kind, could produce the most beautiful music imaginable, I know right well that we would have been inundated with protests that such a thing is a physical impossibility. Indeed, every scientist could have given you dozens of good reasons why such a thing would be entirely absurd, impossible, and just pure fiction. Nevertheless, in the current issue of *Science and Invention*, there is described the apparatus invented by L. Theremin, a young Russian who uses radio principles for his enthralling new kind of music.

In front of him stands a box containing certain radio instruments. From the top of the box issues a rod, while at the left hand of the box is a brass ring. Just by waving his hands in the vicinity of the rod and ring, Mr. Theremin produces the purest as well as the most beautiful kind of music that has ever been produced. The effect of the body capacity of the human being is responsible for the music and anyone can learn to play the instrument in short order, providing he knows music. The instrument gives forth flute-like or violin sounds of the most exquisite beauty.

A similar instrument, by the way, was used about two years ago, in my so-called Pianorad, an instrument using 24 radio vacuum tubes, which I operate by means of an ordinary piano keyboard, while the music issues from the loud speaker the same as does the music of Theremin. Both instruments are based upon the same principle, except where I use an actual keyboard, Theremin uses his hands, which now act as an electric condenser. Otherwise the principle of the two apparatuses is the same.

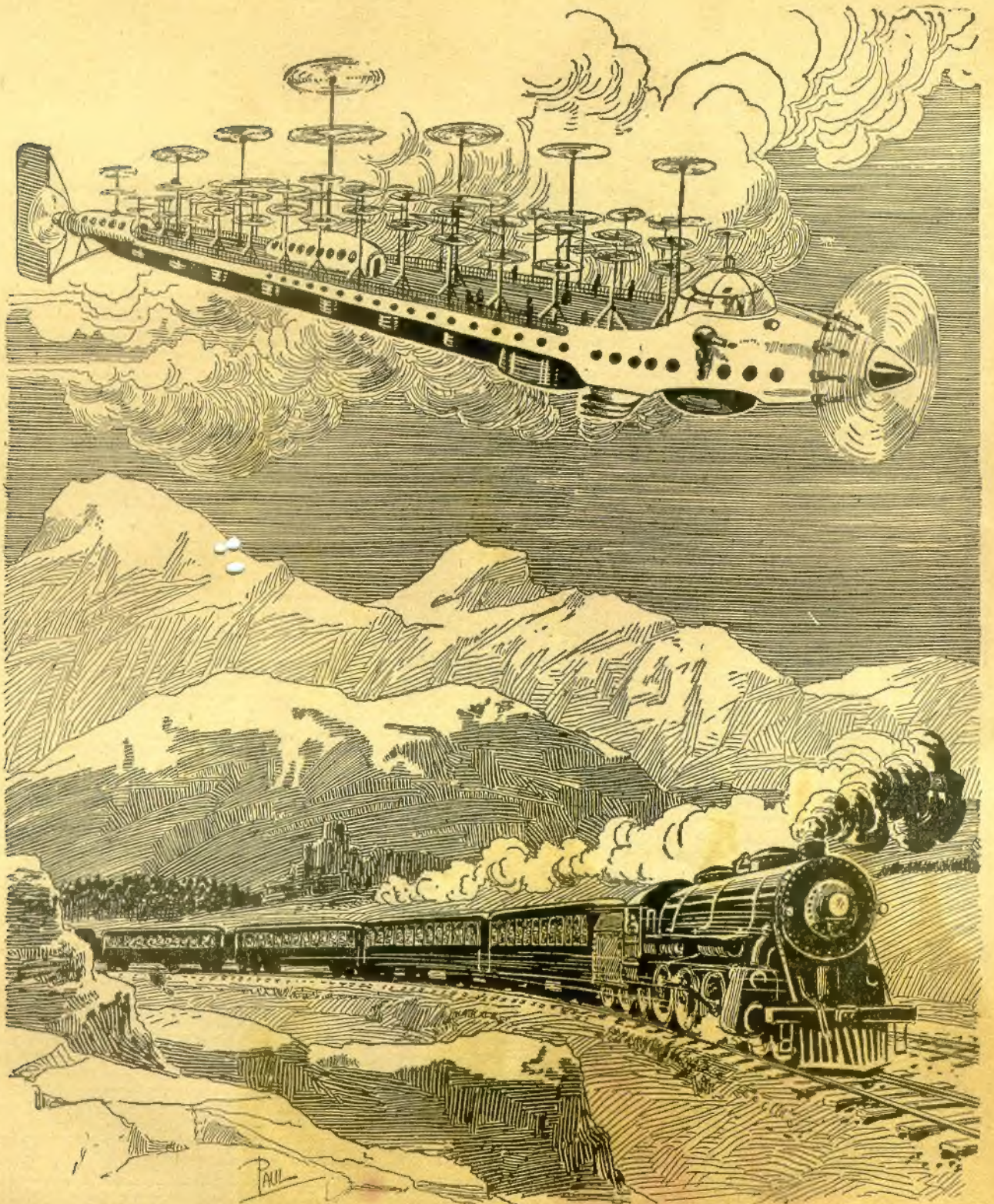
Then again, if one of our scientifiction authors had glibly told us the havoc and destruction that could be wrought by sound waves that could not be heard by the human ear, we would probably have promptly heard from amateur scientists and others. Yet, at a demonstration before the National Academy of Sciences, by Professor R. W. Wood of Johns-Hopkins University, this scientist produced the most astounding results with super sound waves, totally inaudible to the human ear. These sound waves, for instance, when acting upon cracked ice, shook the ice to pieces in short order and snow resulted. A fish in a glass bowl, when subjected to these silent sound waves, is killed within several minutes. An ordinary candle, suspended in water, and influenced through the super sound waves, is shaken into powder and the water becomes a white milky fluid.

Stranger yet, if two metal plates, separated by a quartz disc, and connected to the super sound wave instruments, are placed in a beaker, the latter filled with oil, there is created a sort of mound, while the oil will form a little mountain and stay that way, as long as the super sound waves are turned on. Not only that, but the top of the liquid oil mound will readily support a weight of 5 ounces at its crest. All these are facts, much stranger than fiction, and most of them have never even been used or imagined by the average scientifiction writer. If he had imagined them, and written his imaginings, he would probably have been quickly derided or worse.

Mr. Hugo Gernsback speaks every Tuesday at 9.30 P. M. from WRNY on various scientific and radio subjects.

ROBUR THE CONQUEROR
or THE CLIPPER OF THE CLOUDS
by Jules Verne

Author of "A Trip to the Center of the Earth," "Off on a Comet," etc.



The Albatross continued her descent, slowing her ascension screws and moderating her speed so as not to leave the train behind. She flew about it like an enormous beetle or a gigantic bird of prey. She headed to right and left, and swept on in front, and hung behind . . .

CHAPTER I

MYSTERIOUS SOUNDS

"BANG! Bang!"

The pistol shots were almost simultaneous. A cow peacefully grazing fifty yards away received one of the bullets in her back. She had nothing to do with the quarrel all the same.

Neither of the adversaries was hit.

Who were these two gentlemen? We do not know, although this would be an excellent opportunity to hand down their names to posterity. All we can say is that the elder was an Englishman and the younger an American, and both of them were old enough to know better.

So far as recording in what locality the inoffensive ruminant had just tasted her last tuft of herbage, nothing could be easier. It was on the left bank of Niagara, not far from the suspension bridge which joins the American to the Canadian bank three miles from the falls.

The Englishman stepped up to the American.

"I contend, nevertheless, that it was 'Rule Britannia!'"

"And I say it was 'Yankee Doodle!'" replied the young American.

The dispute was about to begin again when one of the seconds—doubtless in the interests of the milk trade—interposed.

"Suppose we say it was 'Rule Doodle' and 'Yankee Britannia,' and adjourn to breakfast?"

This compromise between the national airs of Great Britain and the United States was adopted to the general satisfaction. The Americans and Englishmen walked up the bank of the Niagara on their way to Goat Island, the neutral ground between the falls. Let us leave them in the presence of the boiled eggs and traditional ham, and floods enough of tea to make the cataract jealous, and trouble ourselves no more about them. It is extremely unlikely that we shall again meet with them in this story.

Which was right, the Englishman or the American? It is not easy to say. Anyhow the duel shows how great was the excitement, not only in the new but also in the old world, with regard to an inexplicable phenomenon which for a month or more had driven everybody to distraction.

Never had the sky been so much looked at since the appearance of man on the terrestrial globe. The night before an aerial trumpet had blared its brazen notes through space immediately over that part of Canada between Lake Ontario and Lake Erie. Some people had heard those notes as "Yankee Doodle," others had heard them as "Rule Britannia," and hence the quarrel between the Anglo-Saxons, which ended with the breakfast on Goat Island. Perhaps it was neither one nor the other of these patriotic tunes, but what was undoubted by all was that these extraordinary sounds had seemed to descend from the sky to the earth.

What could it have been? Was it some exuberant aeronaut rejoicing on that sonorous instrument of which some "musicians" make such obstreperous use?

No! There was no balloon and there were no aeronauts. Some strange phenomenon had occurred in the higher zones of the atmosphere, a phenomenon of which neither the nature nor the cause could be explained. To-day it appeared over America; forty-eight hours afterwards it was over Europe; a week later it was in Asia over the Celestial Empire.

Hence in every country of the world — empire, kingdom, or republic — there was anxiety which it was important to allay. If you hear in your house strange and inexplicable noises, do you not at once endeavor to discover the cause? And if your search is in vain, do you not leave your house and take up your quarters in another? But in this case the house was the terrestrial globe! There are no means of leaving that house for the moon, or Mars, or Venus, or Jupiter, or any other planet of the solar system. And so of necessity we have to find out what it is that takes place, not in the infinite void, but within the atmospherical zones. In fact, if there is no air there is no noise, and as there was a noise — that famous trumpet, to wit—the phenomenon must occur in the air, the density of which invariably diminishes, and which does not extend for more than some miles round our spheroid.

Naturally the newspapers took up the question in their thousands, and treated it in every form, throwing on it both light and darkness, recording many things about it true or false, alarming and tranquilizing their readers—as the sale required—and almost driving ordinary people mad. At one blow party politics dropped un-

"ROBUR THE CONQUEROR" was issued in 1886, coincident with the earliest practical interest which began to stir the world in regard to the "conquest of the air." With his usual boldly scientific imagination Verne, having studied the question thoroughly from all sides, looked into the future, formed a judgment, and pictured the conquering air machine in the style he believed most likely to achieve success.

In his poetical climax Verne declares that Robur is "the spirit of the future"; and it is true that even to-day we can build no machine to match the "Albatross." We have, however, far outdistanced the historical account of aviation which Verne gives us in the course of his story, and which necessarily ceases with the early "eighties." The experiments of Professor Langley in Washington in 1896 started the world on toward a true knowledge of the laws of flight. Since then Count Zeppelin and a dozen others in the "lighter than air" machines, and the Wright brothers and a hundred others in those "heavier than air," have achieved results which scarce any but Verne himself had even dreamed of, when he wrote "Robur the Conqueror."

It is interesting to note that for many years after the publication of Verne's ideas, the contest between the two schools, the lighter-than-air, and the heavier-than-air, has been raging. The Zeppelinists in the meanwhile had their say, while the airplane adherents had theirs. Yet it should be noted that it is most likely that a machine of the Verne type will in the end prevail. The lighter-than-air machines of the Zeppelin type will probably never be used commercially to any great extent, due to their exceedingly high cost, for one thing, and, second, due to the difficulty in navigating these huge monsters of the air. As for Verne's still more radically "heavy" ship, sustained aloft by the direct lift of her screws, nothing in the least practical has as yet been achieved in that line.

Nearly twenty years after writing "Robur," Jules Verne turned again to the same theme; and in 1905, the very year of his death, his faithful publishers, the Hetzels, issued "The Master of the World." This is a sequel to "Robur the Conqueror," and will be published by us immediately after "Robur." The sequel clearly evidences that the inventive power of the aged master and his skill in conceiving and portraying a dramatic climax remained unimpaired even to the end.

For the background of this story, Verne returns chiefly to the region of Lake Erie and Niagara, the tremendous cataract which had so impressed him on his visit to it nearly forty years before, and which he had described in "The Floating City."

heeded—and the affairs of the world went on none the worse for it.

But what could this thing be? There was not an observatory that was not applied to. If an observatory could not give a satisfactory answer, what was the use of observatories? If astronomers, who doubled and tripled the stars a hundred thousand million miles away, could not explain a phenomenon occurring only a few miles off, what was the use of astronomers?

The observatory at Paris was very guarded in what it said. In the mathematical section they had not thought the statement worth noticing; in the meridional section they knew nothing about it; in the physical observatory they had not come across it; in the geodetic section they had had no observation; in the meteorological section there had been no record; in the calculating room they had had nothing to deal with. At any rate the confession was a frank one, and the same frankness characterized the replies from the observatory of Montsouris and the magnetic station in the park of St. Maur. The same respect for the truth distinguished the Bureau des Longitudes.

The provinces were slightly more affirmative. Perhaps in the night of the fifth and morning of the sixth of May there had appeared a flash of light of electrical origin which lasted about twenty seconds. At the Pic du Midi this light appeared between nine and ten in the evening. At the Meteorological Observatory on the Puy de Dome the light had been observed between one and two o'clock in the morning; at Mont Ventoux in Provence it had been seen between two and three o'clock; at Nice it had been noticed between three and four o'clock; while at the Semnoz Alps between Annecy, Le Bourget, and Le Léman, it had been detected just as the zenith was paling with the dawn.

Now it evidently would not do to disregard these observations altogether. There could be no doubt that a light had been observed at different places, in succession, at intervals, during some hours. Hence, whether it had been produced from many centers in the terrestrial atmosphere, or from one center, it was plain that the light must have traveled at a speed of over one hundred and twenty miles an hour.

In the United Kingdom there was much perplexity. The observatories were not in agreement. Greenwich would not consent to the proposition of Oxford. They were agreed on one point, however, and that was: "It was nothing at all!"

But, said one, "It was an optical illusion!" While the other contended that, "It was an acoustical illusion!" And so they disputed. Something, however, was, it will be seen, common to both. "It was an illusion."

Between the observatory of Berlin and the observatory of Vienna the discussion threatened to end in international complications; but Russia, in the person of the director of the observatory at Pulkowa, showed that both were right. It all depended on the point of view from which they attacked the phenomenon, which, though impossible in theory, was possible in practice.

In Switzerland, at the observatory of Sautis in the canton of Appenzell, at the Righi, at the Gäbriss, in the passes of the St. Gothard, at the St. Bernard, at the Julier, at the Simplon, at Zurich, at Somblick in the Tyrolean Alps, there was a very strong disinclination to say anything about what nobody could prove—and that was nothing but reasonable.

But in Italy, at the meteorological stations on Vesuvius, on Etna, in the Casa Inglesi, at Monte Cavo, the observers made no hesitation in admitting the materiality of the phenomenon, particularly as they had seen it by day in the form of a small cloud of vapor, and by night in that of a shooting star. But of what it was they knew nothing.

SCIENTISTS began at last to tire of the mystery, while they continued to disagree about it, and even to frighten the lowly and the ignorant, who, thanks to one of the wisest laws of nature, have formed, form, and will form the immense majority of the world's inhabitants. Astronomers and meteorologists would soon have dropped the subject altogether had not, on the night of the 26th and 27th, the observatory of Kautokeino at Finmark, in Norway, and during the night of the 28th and 29th that of Isfjord at Spitzbergen—Norwegian one and Swedish the other—found themselves agreed in recording that in the center of an aurora borealis there had appeared a sort of huge bird, an aerial monster, whose structure they were unable to determine, but who, there was no doubt, was showering off from his body certain corpuscles which exploded like bombs.

In Europe not a doubt was thrown on this observation of the stations in Finmark and Spitzbergen. But what appeared the most phenomenal about it was that the Swedes and Norwegians could find themselves in agreement on any subject whatever.

There was a laugh at the asserted discovery in all the observatories of South America, in Brazil, Peru, and La Plata, and in those of Australia at Sydney, Adelaide, and Melbourne; and Australian laughter is very catching.

To sum up, only one chief of a meteorological station ventured on a decided answer to this question, notwithstanding the sarcasms that his solution provoked. This was a Chinaman, the director of the observatory at Zi-Ka-Wey which rises in the center of a vast plateau less than thirty miles from the sea, having an immense horizon and wonderfully pure atmosphere. "It is possible," said he, "that the object was an aviform apparatus—a flying machine!"

What nonsense!

But if the controversy was keen in the old world, we can imagine what it was like in that portion of the new of which the United States occupy so vast an area.

A Yankee, we know, does not waste time on the road. He takes the street that leads him straight to his end. And the observatories of the American Federation did not hesitate to do their best. If they did not hurl their objectives at each others' heads, it was because they would have had to put them back just when they most wanted to use them. In this much-disputed question the observatories of Washington in the District of Columbia, and Cambridge in Massachusetts, found themselves opposed by those of Dartmouth College in New Hampshire, and Ann Arbor in Michigan. The subject of their dispute was not the nature of the body observed, but the precise moment of its observation. All of them claimed to have seen it the same night, the same hour, the same minute, the same second, although the

trajectory of the mysterious voyager took it but a moderate height above the horizon. Now from Massachusetts to Michigan, from New Hampshire to Columbia, the distance is too great for this double observation, made at the same moment, to be considered possible.

Dudley at Albany, in the state of New York, and West Point, the military academy, showed that their colleagues were wrong by an elaborate calculation of the right ascension and declination of the aforesaid body.

But later on it was discovered that the observers had been deceived in the body, and that what they had seen was an aerolite. This aerolite could not be the object in question, for how could an aerolite blow a trumpet?

It was in vain that they tried to get rid of this trumpet as an acoustical illusion. The ears were no more deceived than the eyes. Something had assuredly been seen, and something had assuredly been heard. In the night of the 12th and 13th of May—a very dark night—the observers at Yale College, in the Sheffield Science School, had been able to take down a few bars of a musical phrase in D major, common time, which gave note for note, rhythm for rhythm, the chorus of the Chant du Départ.

"Good," said the Yankee wags. "There is a French band well up in the air."

"But to joke is not to answer." Thus said the observatory at Boston, founded by the Atlantic Iron Works Society, whose opinions in matters of astronomy and meteorology began to have much weight in the world of science.

Then there intervened the observatory at Cincinnati, founded in 1870, on Mount Lookout, thanks to the generosity of Mr. Kilgour, and known for its micrometrical measurements of double stars. Its director declared with the utmost good faith that there had certainly been something, that a traveling body had shown itself at very short periods at different points in the atmosphere, but what were the nature of this body, its dimensions, its speed, and its trajectory, it was impossible to say.

It was then that a journal whose publicity is immense—the *New York Herald*—received the anonymous contribution hereunder.

"There will be in the recollection of most people the rivalry which existed a few years ago between the two heirs of the Begum of Ragginahra, the French doctor Sarrasin, in the city of Frankville, and the German engineer Schultze, in the city of Steeltown, both in the south of Oregon in the United States.

"It will not have been forgotten that, with the object of destroying Frankville, Herr Schultze launched a formidable engine, intended to beat down the town and annihilate it at a single blow.

"Still less will it be forgotten that this engine, whose initial velocity as it left the mouth of the monster cannon had been erroneously calculated, had flown off at a speed exceeding by sixteen times that of ordinary projectiles—or about four hundred and fifty miles an hour—that it did not fall to the ground, and that it passed into an aerolitic stage, so as to circle for ever round our globe.

"Why should not this be the body in question?"

Very ingenious, Mr Correspondent of the *New York Herald!* but how about the trumpet? There was no trumpet in Herr Schultze's projectile!

So all the explanations explained nothing, and all the observers had observed in vain. There remained only the suggestion offered by the director of Zi-Ka-Wey. But the opinion of a Chinaman!

The discussion continued, and there was no sign of agreement. Then came a short period of rest. Some days elapsed without any object, aerolite or otherwise, being descried, and without any trumpet notes being heard in the atmosphere. The body then had fallen on some part of the globe where it had been difficult to trace it; into the sea, perhaps. Had it sunk in the depths of the Atlantic, the Pacific, or the Indian Ocean? What was to be said in this matter?

But then, between the 2nd and 9th of June, there came a new series of facts which could not possibly be explained by the unaided existence of a cosmic phenomenon.

In a week the Hamburgers at the top of St. Michael's Tower, the Turks on the highest minaret of St. Sophia, the Rouennais at the end of the metal spire of their cathedral, the Strasburgers at the summit of their minster, the Americans on the head of the Liberty statue at the entrance of the Hudson and on the Bunker Hill monument at Boston, the Chinese at the spike of the temple of the Four Hundred Genii at Canton, the Hindoos on the sixteenth terrace of the pyramid of the temple at Tanjore, the San Pietrini at the cross of St. Peter's at Rome, the English at the cross of St. Paul's in London, the Egyptians at the apex of the Great Pyramid of Ghizeh, the Parisians at the lightning conductor of the iron tower of the Exposition of 1889, a thousand feet high, all of them beheld a flag floating from some one of these inaccessible points.

And the flag was black, dotted with stars, and it bore a golden sun in its center.

CHAPTER II

Agreement Impossible

"AND the first who say the contrary——"

"Indeed! But we will say the contrary so long as there is a place to say it in!"

"And in spite of your threats——"

"Mind what you are saying, Bat Fynn!"

"Mind what you are saying, Uncle Prudent!"

"I maintain that the screw ought to be behind!"

"And so do we! And so do we!" replied half a hundred voices mingled into one.

"No! It ought to be in front!" shouted Phil Evans.

"In front!" roared fifty other voices, with a vigor in no whit less remarkable.

"We shall never agree!"

"Never! Never!"

"Then what is the use of a dispute?"

"It is not a dispute! It is a discussion!"

One would not have thought so, to listen to the taunts, objurgations and vociferations which filled the lecture room for a good quarter of an hour.

The room was one of the largest in the Weldon Institute, the well-known club in Walnut Street, Philadelphia, Pennsylvania, U. S. A. The evening before there had been an election of a lamplighter, occasioning many public manifestations, noisy meetings, and even interchanges of blows, resulting in an effervescence which had not yet subsided, and which

would account for some of the excitement just exhibited by the members of the Weldon Institute. For this was merely a meeting of balloonists, discussing the burning question of the direction of balloons.

In this great saloon there were struggling, pushing, gesticulating, shouting, arguing, disputing, a hundred balloonists, all with their hats on, under the authority of a president, assisted by a secretary and treasurer. They were not engineers by profession, but simply amateurs of all that appertained to aerostatics, and they were amateurs in a fury, and especially foes of those who would oppose balloons, "apparatuses heavier than the air," flying machines, aerial ships, or what not. That these people might one day discover the method of guiding balloons is possible. There could be no doubt that their president had considerable difficulty in guiding them.

This president, well known in Philadelphia, was the famous Uncle Prudent, Prudent being his family name. There is nothing surprising in America in the qualificative uncle, since you can there be uncle without having either nephew or niece. There they speak of uncle as in other places they speak of father, though the father may have had no children.

Uncle Prudent was a personage of consideration, and in spite of his name was well known for his audacity. He was very rich, and that is no drawback even in the United States; and how could it be otherwise when he owned the greater part of the shares in Niagara Falls? A society of engineers had just been founded at Buffalo for working the cataract. It seemed to be an excellent speculation. The seven thousand five hundred cubic meters that pass over Niagara in a second would produce seven millions of horse-power. This enormous power, distributed amongst all the workshops within a radius of three hundred miles, would return an annual income of three hundred million dollars, of which the greater part would find its way into the pocket of Uncle Prudent. He was a bachelor, he lived quietly, and for his only servant had his valet Frycollin, who was hardly worthy of being the servant to so audacious a master.

Uncle Prudent was rich, and therefore he had friends, as was natural; but he also had enemies, although he was president of the club—among others all those who envied his position. Amongst his bitterest foes we may mention the secretary of the Weldon Institute.

This was Phil Evans, who was also very rich, being the manager of the Wheelton Watch Company, an important manufactory, which makes every day five hundred movements equal in every respect to the Swiss workmanship. Phil Evans would have passed for one of the happiest men in the world, and even in the United States, if it had not been for Uncle Prudent. Like him he was in his forty-sixth year; like him, of invariable health; like him of undoubted boldness. They were two men made to understand each other thoroughly, but they did not, for both were of extreme violence of character. Uncle Prudent was furiously hot; Phil Evans was abnormally cool.

And why had not Phil Evans been elected president of the club? The votes were exactly divided between Uncle Prudent and him. Twenty times there had been a scrutiny, and twenty times the majority had not declared for either one or the other. The position was embarrassing, and it might have lasted for the lifetime of the candidates.

One of the members of the club then proposed a way out of the difficulty. This was Jem Chip, the treasurer of the Weldon Institute. Chip was a confirmed vegetarian, a proscriber of all animal nourishment, of all fermented liquors, half a Mussulman, half a Brahman. On this occasion Jem Chip was supported by another member of the club, William T. Forbes, the manager of a large factory where they made glucose by treating rags with sulphuric acid. A man of good standing was this William T. Forbes, the father of two charming girls—Miss Dorothy, called Doll, and Miss Martha, called Mat, who gave the tone to the best society in Philadelphia.

It followed, then, on the proposition of Jem Chip, supported by William T. Forbes and others, that it was decided to elect the president "on the center point."

This mode of election can be applied in all cases when it is desired to elect the most worthy; and a number of Americans of high intelligence are already thinking of employing it in the nomination of the President of the Republic of the United States.

On two boards of perfect whiteness a black line is traced. The length of each of these lines is mathematically the same, for they have been determined with as much accuracy as the base of the first triangle in a trigonometrical survey. That done, the two boards were erected on the same day in the center of the conference room, and the two candidates, each armed with a fine needle, marched towards the board that had fallen to his lot. The man who planted his needle nearest the center of his line would be proclaimed President of the Weldon Institute.

The operation must be done at once—no guide marks or trial shots allowed; nothing but sureness of eye. The man must have a compass in his eye, as the saying goes; that was all.

Uncle Prudent stuck in his needle at the same moment as Phil Evans did his. Then there began the measurement to discover which of the two competitors had almost nearly approached the center.

Wonderful! Such had been the precision of the shots that the measures gave no appreciable difference. If they were not exactly in the mathematical center of the line, the distance between the needles was so small as to be invisible to the naked eye.

The meeting was much embarrassed.

Fortunately one of the members, Truck Milnor, insisted that the measurements should be remade by means of a rule graduated by the micrometrical machine of M. Perreaux, which can divide a millimeter into fifteen hundred parts. This rule, dividing the fifteen-hundredths of a millimeter with a diamond splinter, was brought to bear on the lines, and on reading the divisions through a microscope the following were the results: Uncle Prudent had approached the center within less than six fifteen-hundredths of a millimeter. Phil Evans was within nine fifteen-hundredths.

And that is why Phil Evans was only secretary of the Weldon Institute, whereas Uncle Prudent was president. A difference of three fifteen-hundredths of a millimeter! And on account of it Phil Evans vowed against Uncle Prudent one of those hatreds which are none the less fierce for being latent.

CHAPTER III

A Visitor is Announced

THE many experiments made during this last quarter of the nineteenth century have given considerable impetus to the question of dirigible balloons. The cars furnished with propellers attached in 1852 to the aerostats of the elongated form introduced by Henry Giffard, the machines of Dupuy de Lome in 1872, of the Tissandier brothers in 1883, and of Captains Krebs and Renard in 1884, yielded many important results. But if these machines, moving in a medium heavier than themselves, maneuvering under the propulsion of a screw, working at an angle to the direction of the wind, and even against the wind, to return to their point of departure, had been really "dirigible," they had only succeeded under very favorable conditions. In large covered halls their success was perfect. In a calm atmosphere they did very well. In a light wind of five or six yards a second they still moved. But nothing practical had been obtained. Against a miller's wind—nine yards a second—the machines had remained almost stationary. Against a fresh breeze—eleven yards a second—they would have advanced backwards. In a storm—twenty-seven to thirty-three yards a second—they would have been blown about like a feather. In a hurricane—sixty yards a second—they would have run the risk of being dashed to pieces. And in one of those cyclones which exceed a hundred yards a second not a fragment of them would have been left. It remained, then, even after the striking experiments of Captains Krebs and Renard, that though dirigible aerostats had gained a little speed, they could not be kept going in a moderate breeze. Hence the impossibility of making practical use of this mode of aerial locomotion.

With regard to the means employed to give the aerostat its motion a great deal of progress had been made. For the steam engines of Henry Giffard, and the muscular force of Dupuy de Lome, electric motors had gradually been substituted. The batteries of bichromate of potassium of the Tissandier brothers had given a speed of four yards a second. The dynamo-electric machines of Captains Krebs and Renard had developed a force of twelve horsepower and yielded a speed of six and a half yards per second

With regard to this motor, engineers and electricians had been approaching more and more to that desideratum which is known as a steam horse in a watch case. Gradually the results of the battery of which Captains Krebs and Renard had kept the secret had been surpassed, and aeronauts had become able to avail themselves of motors whose lightness increased at the same time as their power.

In this there was much to encourage those who believed in the utilization of dirigible balloons. But yet how many good people there are who refuse to admit the possibility of such a thing! If the aerostat finds support in the air it belongs to the medium in which it moves; under such conditions, how can its mass, which offers so much resistance to the currents of the atmosphere, make its way against the wind?

In this struggle of the inventors after a light and powerful motor, the Americans had most nearly attained what they sought. A dynamo-electric apparatus, in which a new battery was employed, the composition of which was still a mystery, had been bought from its inventor, a Boston chemist up to then unknown. Calculations made with the greatest care, diagrams drawn with the utmost exactitude, showed that by means of this apparatus driving a screw of given dimensions a displacement could be obtained of from twenty to twenty-two yards a second.

Now this was magnificent!

"And it is not dear," said Uncle Prudent, as he handed to the inventor in return for his formal receipt the last instalment of the hundred thousand paper dollars he had paid for his invention.

Immediately the Weldon Institute set to work. When there comes along a project of practical utility the money leaps nimbly enough from American pockets. The funds flowed in even without its being necessary to form a syndicate. Three hundred thousand dollars came into the club's account at the first appeal. The work began under the superintendence of the most celebrated aeronaut of the United States, Harry W. Tinder, immortalized by three of his ascents out of a thousand, one in which he rose to a height of twelve thousand yards, higher than Gay Lussac, Coxwell, Sivet, Crocé-Spinelli, Tissandier, Glaisher; another in which he had crossed America from New York to San Francisco, exceeding by many hundred leagues the journeys of Nadar, Godard, and others, to say nothing of that of John Wise, who accomplished eleven hundred and fifty miles from St. Louis to Jefferson county; the third, which ended in a frightful fall from fifteen hundred feet at the cost of a slight sprain in the right thumb, while the less fortunate Pilâtre de Rozier fell only seven hundred feet, and yet killed himself on the spot!

At the time this story begins the Weldon Institute had got their work well in hand. In the Turner yard at Philadelphia there reposed an enormous aerostat, whose strength had been tried by highly compressed air. It well merited the name of the monster balloon.

How large was Nadar's Géant? Six thousand cubic meters. How large was John Wise's balloon? Twenty thousand cubic meters. How large was the Giffard balloon at the 1878 Exhibition? Twenty-five thousand cubic meters. Compare these three aerostats with the aerial machine of the Weldon Institute, whose volume amounted to forty thousand cubic meters, and you will understand why Uncle Prudent and his colleagues were so justifiably proud of it.

This balloon not being destined for the exploration of the higher strata of the atmosphere, was not called the Excelsior, a name which is rather too much held in honor among the citizens of America. No! It was called simply, the Go-ahead, and all it had to do was to justify its name by going ahead obediently to the wishes of its commander.

The dynamo-electric machine, made according to the patent purchased by the Weldon Institute, was nearly ready. In less than six weeks the Go-ahead would start for its first cruise through space.

But, as we have seen, all the mechanical difficulties had not been overcome. Many evenings had been devoted to discussing, not the form of its screw nor its dimensions, but whether it ought to be put behind, as the Tissandier brothers had done, or before as Captains Krebs and Renard had done. It is unnecessary to add that the partisans of the two systems had almost come to blows. The group of "Beforists" were equaled in number by the group of

"Behindists." Uncle Prudent, who ought to have given the casting vote—Uncle Prudent, brought up doubtless in the school of Professor Buridan—could not bring himself to decide.

Hence the impossibility of getting the screw into place. The dispute might last for some time, unless the government interfered. But in the United States the government meddles with private affairs as little as it possibly can. And it is right.

Things were in this state at this meeting on the 13th of June, which threatened to end in a riot—insults exchanged, fisticuffs succeeding the insults, cane thrashings succeeding the fisticuffs, revolver shots succeeding the cane thrashings—when at thirty-seven minutes past eight there occurred a diversion.

The porter of the Weldon Institute coolly and calmly, like a policeman amid the storm of the meeting, approached the presidential desk. On it he placed a card. He awaited the orders that Uncle Prudent found it convenient to give.

Uncle Prudent turned on the steam whistle, which did duty for the presidential bell, for even the Kremlin clock would have struck in vain! But the tumult slackened not.

Then the president removed his hat. Thanks to this extreme measure a semi-silence was obtained.

"A communication!" said Uncle Prudent, after taking a huge pinch from the snuff-box which never left him.

"Speak up!" answered eighty-nine voices, accidentally in agreement on this one point.

"A stranger, my dear colleagues, asks to be admitted to the meeting."

"Never!" replied every voice.

"He desires to prove to us, it would appear," continued Uncle Prudent, "that to believe in guiding balloons is to believe in the absurdest of Utopias!"

"Let him in! Let him in!"

"What is the name of this singular personage?" asked secretary Phil Evans.

"Robur," replied Uncle Prudent.

"Robur! Robur! Robur!" yelled the assembly. And the welcome accorded so quickly to the curious name was chiefly due to the Weldon Institute hoping to vent its exasperation on the head of him who bore it!

CHAPTER IV

In Which a New Character Appears

"CITIZENS of the United States! My name is Robur. I am worthy of the name! I am forty years old, although I look but thirty, and I have a constitution of iron, a healthy vigor that nothing can shake, a muscular strength that few can equal, and a digestion that would be thought first class even in an ostrich!"

They were listening! Yes! The riot was quelled at once by the totally unexpected fashion of the speech. Was this fellow a madman or a hoaxer? Whoever he was, he kept his audience in hand. There was not a whisper in the meeting in which but a few minutes ago the storm was in full fury.

And Robur looked the man he said he was. Of middle height and geometric breadth, his figure was a regular trapezoid with the greatest of its parallel sides formed by the line of his shoulders. On this line attached by a robust neck there rose an enormous spheroidal head. The head of what animal did it resemble from the point of view of passional analogy? The head of a bull; but a bull with an intelligent face. Eyes which at the least opposition would glow like coals of fire; and above them a permanent contraction of the superciliary muscle, an invariable sign of extreme energy. Short hair, slightly woolly, with metallic reflections; large chest rising and falling like a smith's bellows; arms, hands, legs, feet, all worthy of the trunk. No mustaches, no whiskers, but a large American goatee, revealing the attachments of the jaw whose masseter muscles were evidently of formidable strength. It has been calculated—what has not been calculated?—that the pressure of the jaw of an ordinary crocodile can reach four hundred atmospheres, while that of a hound can only amount to one hundred. From this the following curious formula has been deduced:—If a kilogram of dog produces eight kilograms of masseteric force, a kilogram of crocodile could produce twelve. Now, a kilogram of the aforesaid Robur would not produce less than ten, so that he came between the dog and the crocodile.

From what country did this remarkable specimen come? It was difficult to say. One thing was noticeable, and that was that he expressed himself fluently in English without a trace of the drawling twang that distinguishes the Yankees of New England.

He continued: "And now, honorable citizens, for my mental faculties. You see before you an engineer whose nerves are in no way inferior to his muscles. I have no fear of anything or anybody. I have a strength of will that has never had to yield. When I have decided on a thing, all America, all the world, may strive in vain to keep me from it. When I have an idea I allow no one to share it, and I do not permit any contradiction. I insist on these details, honorable citizens, because it is necessary you should quite understand me. Perhaps you think I am talking too much about myself? It does not matter if you do! And now consider a little before you interrupt me, as I have come to tell you something that you may not be particularly pleased to hear."

A sound as of the surf on the beach began to rise along the first row of seats—a sign that the sea would not be long in getting stormy again.

"Speak, stranger!" said Uncle Prudent, who had some difficulty in restraining himself.

And Robur spoke as follows, without troubling himself any more about his audience.

"Yes! I know it well! After a century of experiments that have led to nothing, and trials giving no result, there still exist ill-balanced minds who believe in dirigible balloons. They imagine that a motor of some sort, electric or otherwise, might be applied to their pretentious skin bags which are at the mercy of every current in the atmosphere. They persuade themselves that they can be masters of an aerostat as they can be masters of a ship on the surface of the sea. Because a few inventors in calm or nearly calm weather have succeeded in working on an angle with the wind, or even going to windward in a gentle breeze, they think that the steering of aerial apparatus lighter than the air is a practicable matter Well, now, look here: You hundred, who believe in the realization of your dreams, are throwing your thousands of dollars not into water but into space! You are fighting the impossible!"

Strange it was that at this affirmation the members of the Weldon Institute did not move. Had

they become as deaf as they were patient? Or were they reserving themselves to see how far this audacious contradictor would dare to go?

Robur continued: "What? A balloon! When to obtain the raising of a couple of pounds you require a cubic yard of gas. A balloon pretending to resist the wind by aid of its mechanism, when the pressure of a light breeze on a vessel's sails is not less than that of four hundred horsepower; when in the accident at the Tay Bridge you saw the storm produce a pressure of eight and a half hundredweight on a square yard. A balloon, when on such a system nature has never constructed anything flying, whether furnished with wings like birds, or membranes like certain fish, or certain mammalia——"

"Mammalia?" exclaimed one of the members.

"Yes! Mammalia! The bat, which flies, if I am not mistaken! Is the gentleman unaware that this flier is a mammal? Did he ever see an omelette made of bat's eggs?"

The interrupter reserved himself for future interruption, and Robur resumed: "But does that mean that man is to give up the conquest of the air, and the transformation of the domestic and political manners of the old world, by the use of this admirable means of locomotion? By no means. As he has become master of the seas with the ship, by the oar, the sail, the wheel, and the screw, so shall he become master of atmospherical space by apparatus heavier than the air—for it must be heavier to be stronger than the air!"

And then the assembly exploded. What a broadside of yells escaped from all these mouths, aimed at Robur like the muzzles of so many guns! Was not this hurling a declaration of war into the very camp of the balloonists? Was not this a stirring up of strife between "the lighter" and "the heavier" than air?

Robur did not even frown. With folded arms he waited bravely till silence was obtained.

By a gesture Uncle Prudent ordered the firing to cease.

"Yes," continued Robur, "the future is for the flying machine. The air affords a solid fulcrum. If you will give a column of air an ascensional movement of forty five meters a second, a man can support himself on the top of it if the soles of his boots have a superficies of only the eighth of a square meter. And if the speed be increased to ninety meters, he can walk on it with naked feet. Or if, by means of a screw, you drive a mass of air at this speed, you get the same result."

What Robur said had been said before by all the partisans of aviation, whose work slowly but surely is leading on to the solution of the problem. To Ponton d'Amécourt, La Landelle, Nadar, De Luzy, De Louvrié, Liais, Beleguir, Moreau, the brothers Richard, Babinet, Jobert, Du Temple, Salives, Penaud, De Villeneuve, Gauchot and Tatin, Michel Loup, Edison, Planavergne, and so many others, belongs the honor of having brought forward ideas of such simplicity. Abandoned and resumed times without number, they are sure some day to triumph. To the enemies of aviation, who urge that the bird only sustains himself by warming the air he strikes, their answer is ready. Have they not proved that an eagle weighing five kilograms would have to fill fifty cubic meters with his warm fluid merely to sustain himself in space?

This is what Robur demonstrated with undeniable logic amid the uproar that arose on all sides. And in conclusion these are the words he hurled in the faces of the balloonists: "With your balloons you can do nothing—you will arrive at nothing -you dare do nothing! The boldest of your aeronauts, John Wise, although he has made an aerial voyage of twelve hundred miles above the American continent, has had to give up his project of crossing the Atlantic! And you have not advanced a step—not one step—towards your end."

"Sir," said the president, who in vain endeavored to keep himself cool, "you forget what was said by our immortal Franklin at the first appearance of the fire balloon, 'It is but a child, but it will grow!' It was but a child, and it has grown."

"No, Mr. President, it has not grown! It has got fatter—and that is not the same thing!"

This was a direct attack on the Weldon Institute, which had decreed, helped, and paid for the making of a monster balloon. And so propositions of the following kind began to fly about the room: "Turn him out!" "Throw him off the platform!" "Prove that he is heavier than the air!"

BUT these were only words, not means to an end. Robur remained impassible, and continued; "There is no progress for your aerostats, my citizen balloonists; progress is for flying machines. The bird flies, and he is not a balloon, he is a piece of mechanism!"

"Yes, he flies!" exclaimed the fiery Bat. T. Fynn; "but he flies against all the laws of mechanics."

"Indeed!" said Robur, shrugging his shoulders, and resuming, "Since we have begun the study of the flight of large and small birds one simple idea has prevailed—to imitate nature, which never makes mistakes. Between the albatross, which gives hardly ten beats of the wing per minute, between the pelican, which gives seventy——"

"Seventy-one," said the voice of a scoffer.

"And the bee, which gives one hundred and ninety-two per second——"

"One hundred and ninety-three!" said the facetious individual.

"And the common house fly, which gives three hundred and thirty——"

"And a half!"

"And the mosquito, which gives millions——"

"No, milliards!"

But Robur, the interrupted, interrupted not his demonstration. "Between these different rates——" he continued.

"There is a difference," said a voice.

"There is a possibility of finding a practical solution. When De Lucy showed that the stag beetle, an insect weighing only two grammes, could lift a weight of four hundred grammes, or two hundred times its own weight, the problem of aviation was solved. Besides, it has been shown that the wing surface decreases in proportion to the increase of the size and weight of the animal. Hence we can look forward to such contrivances——"

"Which would never fly!" said secretary Phil Evans.

"Which have flown, and which will fly," said Robur, without being in the least disconcerted, "and which we can call streophores, helicopters, orthopters or, in imitation of the word 'nef,' which comes

from 'navis,' or call them 'efs,' from 'avis,'—by means of which man will become the master of space. The helix——"

"Ah, the helix!" replied Phil Evans. "But the bird has no helix; that we know!"

"So," said Robur; "but Penaud has shown that in reality the bird makes a helix, and its flight is helicopteral. And the motor of the future is the screw——"

"From such a maladee
Saint Helix keep us free!"

sung out one of the members, who had accidentally hit upon the air from Herold's *Zampa*.

And they all took up the chorus:

"From such a maladee
Saint Helix keep us free!"

with such intonations and variations as would have made the French composer groan in his grave.

As the last notes died away in a frightful discord Uncle Prudent took advantage of the momentary calm to say, "Stranger, up to now, we let you speak without interruption."

It seemed that for the president of the Weldon Institute shouts, yells, and catcalls were not interruptions, but only an exchange of arguments.

"But I may remind you, all the same, that the theory of aviation is condemned beforehand, and rejected by the majority of American and foreign engineers. It is a system which was the cause of the death of the Flying Saracen at Constantinople, of the monk Volador at Lisbon, of De Leturn in 1852, of De Groof in 1864, besides the victims I forget since the mythological Icarus——"

"A system," replied Robur, "no more to be condemned than that whose martyrology contains the names of Pilâtre de Rozier at Calais, of Blanchard at Paris, of Donaldson and Grimwood in Lake Michigan, of Sivel and of Crocé-Spinelli, and others whom it takes good care to forget."

This was a counter-thrust with a vengeance.

"Besides," continued Robur, "with your balloons as good as you can make them you will never obtain any speed worth mentioning. It would take you ten years to go round the world—and a flying machine could do it in a week!"

Here arose a new tempest of protests and denials, which lasted for three long minutes. And then Phil Evans took up the word.

"Mr. Aviator," he said, "you who talk so much of the benefits of aviation, have you ever aviated?"

"I have."

"And made the conquest of the air?"

"Not unlikely."

"Hooray for Robur the Conqueror!" shouted an ironical voice.

"Well, yes! Robur the Conqueror! I accept the name and I will bear it, for I have a right to it."

"We beg to doubt it!" said Jem Chip.

"Gentlemen," said Robur, and his brows knit, "when I have just seriously stated a serious thing I do not permit anyone to reply to me by a flat denial, and I shall be glad to know the name of the interrupter."

"My name is Chip, and I am a vegetarian"

"Citizen Chip," said Robur, "I knew that vegetarians had longer alimentary canals than other men—a good foot longer at the least. That is quite long enough; and so do not compel me to make yours any longer by beginning at your ears and——"

"Throw him out."

"Into the street with him!"

"Lynch him!"

"Helix him!"

The rage of the balloonists burst forth at last.

They rushed at the platform. Robur disappeared amid a sheaf of hands that were thrown about as if caught in a storm. In vain the steam whistle screamed its fanfares over the assembly. Philadelphia might well think that a fire was devouring one of its quarters and that all the waters of the Schuylkill could not put it out.

Suddenly there was a recoil in the tumult. Robur had put his hands into his pockets, withdrawn them, and now held them out at the front ranks of the infuriated mob.

In each hand was one of those American institutions known as revolvers which the mere pressure of the fingers is enough to fire—pocket mitrailleuses in fact.

And taking advantage not only of the recoil of his assailants but also of the silence which accompanied it,

"Decidedly," said he, "it was not Amerigo that discovered the New World, it was Cabot! You are not Americans, citizen balloonists! You are only Cabo—"

Four or five pistol shots cracked out, fired into space. They hurt nobody. Amid the smoke the engineer vanished; and when it had thinned away there was no trace of him. Robur the conqueror had flown, as if some apparatus of aviation had borne him into the air.

CHAPTER V

Another Disappearance

THIS was not the first occasion on which, at the end of their stormy discussions, the members of the Weldon Institute had filled Walnut Street and its neighborhood with their tumult. Several times had the inhabitants complained of the noisy way in which the proceedings ended, and more than once had the policemen had to interfere to clear the thoroughfare for the passersby, who for the most part were supremely indifferent on this question of aerial navigation. But never before had the tumult attained such proportions, never had the complaints been better founded, never had the intervention of the police been more necessary.

But there was some excuse for the members of the Weldon Institute. They had been attacked in their own house. To these enthusiasts for "lighter than air" a no less enthusiast for "heavier than air" had said things absolutely abhorrent. And at the moment they were about to treat him as he deserved, he had disappeared.

So they cried aloud for vengeance To leave such insults unpunished was impossible to all with American blood in their veins Had not the sons of Amerigo been called the sons of Cabot? Was not that an insult as unpardonable as it happened to be just—historically?

The members of the club in several groups rushed down Walnut Street, then into the adjoining streets,

and then all over the neighborhood. They woke up the householders; they compelled them to search their houses, prepared to indemnify them later on for the outrage on their privacy. Vain were all their trouble and searching. Robur was nowhere to be found; there was no trace of him. He might have gone off in the Go-ahead, the balloon of the Institute, for all they could tell. After an hour's hunt the members had to give in and separate, not before they had agreed to extend their search over the whole territory of the twin Americas that form the new continent.

By eleven o'clock quiet had been restored in the neighborhood of Walnut Street. Philadelphia was able to sink again into that sound sleep which is the privilege of non-manufacturing towns. The different members of the club parted to seek their respective houses. To mention the most distinguished amongst them, William T. Forbes sought his large sugar establishment, where Miss Doll and Miss Mat had prepared for him his evening tea, sweetened with his own glucose. Truck Milnor took the road to his factory in the distant suburb, where the engines worked day and night. Treasurer Jem Chip, publicly accused of possessing an alimentary canal twelve inches longer than that of other men, returned to the vegetable soup that was waiting for him.

Two of the most important balloonists—two only—did not seem to think of returning so soon to their domicile. They availed themselves of the opportunity to discuss the question with more than usual acrimony. These were the irreconcilables, Uncle Prudent and Phil Evans, the president and secretary of the Weldon Institute.

At the door of the club the valet Frycollin waited for Uncle Prudent, his master, and at last he went after him, though he cared but little for the subject which had set the two colleagues at loggerheads.

It is only by an euphemism that the verb "discuss" can be used to express the way in which the duet between the president and secretary was being performed. As a matter of fact they were in full wrangle with an energy born of their old rivalry.

"No, sir, no," said Phil Evans. "If I had had the honor of being president of the Weldon Institute, there never, no, never, would have been such a scandal."

"And what would you have done, if you had had the honor?" demanded Uncle Prudent.

"I would have stopped the insulter before he had opened his mouth."

"It seems to me it would have been impossible to stop him until he had opened his mouth," replied Uncle Prudent.

"Not in America, sir; not in America."

AND exchanging such observations, increasing in bitterness as they went, they walked on through the streets farther and farther from their homes, until they reached a part of the city whence they had to go a long way round to get back.

Frycollin followed, by no means at ease to see his master plunging into such deserted spots. He did not like deserted spots, particularly after midnight. In fact the darkness was profound and the moon was only a thin crescent just beginning its monthly life. Frycollin kept a lookout to the left and right of him to see if he was followed. And he fancied he could see five or six hulking fellows dogging his footsteps. Instinctively he drew nearer to his master, but not for the world would he have dared to break in on the conversation of which the fragments reached him.

In short it so chanced that the president and secretary of the Weldon Institute found themselves on the road to Fairmount Park. In the full heat of their dispute they crossed the Schuylkill River by the famous iron bridge. They met only a few belated wayfarers, and pressed on across a wide open tract where the immense prairie was broken every now and then by the patches of thick woodland which make the park different from any other in the world.

There Frycollin's terror became acute, particularly as he saw the five or six shadows gliding after him across the Schuylkill bridge. The pupils of his eyes broadened out to the circumference of his iris, and his limbs seemed to diminish as if endowed with the contractility peculiar to the mollusca and certain of the articulata; for Frycollin, the valet, was an egregious coward.

He was a pure South Carolina negro, with the head of a fool and the carcass of an imbecile. Being only one and twenty, he had never been a slave, not even by birth, but that made no difference to him. Grinning and greedy and idle, and a magnificent poltroon, he had been the servant of Uncle Prudent for about three years. Over and over again had his master threatened to kick him out, but had kept him on for fear of doing worse. With a master ever ready to venture on the most audacious enterprises, Frycollin's cowardice had brought him many arduous trials. But he had some compensation. Very little had been said about his gluttony, and still less about his laziness.

Ah, Valet Frycollin, if you could only have read the future! Why, oh why, Frycollin, did you not remain at Boston with the Sneffels, and not have given them up when they talked of going to Switzerland? Was not that a much more suitable place for you than this of Uncle Prudent's, where danger was daily welcomed?

But here he was, and his master had become used to his faults. He had one advantage, and that was a consideration. Although he was a negro by birth he did not speak like a negro, and nothing is so irritating as that hateful jargon in which all the pronouns are objective and all the verbs infinitive. Let it be understood, also that Frycollin was a thorough coward.

And now it was midnight, and the pale crescent of the moon began to sink in the west behind the trees in the park. The rays streaming fitfully through the branches made the shadows darker than ever. Frycollin looked around him anxiously. "Brrr!" he said, "there are those fellows there all the time. Positively they are getting nearer! Master Uncle!" he shouted.

It was thus he called the president of the Weldon Institute, and thus did the president desire to be called.

At the moment the dispute of the rivals had reached its maximum, and as they hurled their epithets at each other they walked faster and faster, and drew farther and farther away from the Schuylkill bridge They had reached the center of a wide clump of trees, whose summits were just tipped by the parting rays of the moon. Beyond the trees was a very large clearing—an oval field, a complete amphitheater. Not a hillock was there to hinder the

gallop of the horses, not a bush to stop the view of the spectators.

And if Uncle Prudent and Phil Evans had not been so deep in their dispute, and had used their eyes as they were accustomed to, they would have found the clearing was not in its usual state. Was it a flour mill that had anchored on it during the night? It looked like it, with its wings and sails—motionless and mysterious in the gathering gloom.

But neither the president nor the secretary of the Weldon Institute noticed the strange modification in the landscape of Fairmount Park; and neither did Frycollin. It seemed to him that the thieves were approaching, and preparing for their attack; and he was seized with convulsive fear, paralyzed in his limbs, with every hair he could boast of on the bristle. His terror was extreme. His knees bent under him, but he had just strength enough to exclaim for the last time, "Master Uncle! Master Uncle!"

"What is the matter with you?" asked Uncle Prudent. Perhaps the disputants would not have been sorry to have relieved their fury at the expense of the unfortunate valet. But they had no time; and neither even had he time to answer.

A whistle was heard. A flash of electric light shot across the clearing.

A signal, doubtless? The moment had come for the deed of violence! In less time than it takes to tell, six men came leaping across from under the trees, two upon Uncle Prudent, two upon Phil Evans, two upon Frycollin—there was no need for the two last, for the negro was incapable of defending himself. The president and secretary of the Weldon Institute, although taken by surprise, would have resisted.

They had neither time nor strength to do so. In a second they were rendered speechless by a gag, blind by a bandage, thrown down, pinioned and carried bodily off across the clearing. What could they think except that they had fallen into the hands of people who intended to rob them? The people did nothing of the sort, however. They did not even touch Uncle Prudent's pockets, although, according to his custom, they were full of paper dollars.

Within a minute of the attack, without a word being passed, Uncle Prudent, Phil Evans, and Frycollin felt themselves laid gently down, not on the grass, but on a sort of plank that creaked beneath them. They were laid down side by side.

A door was shut; and the grating of a bolt in a staple told them that they were prisoners.

Then there came a continuous buzzing, a quivering, a frrrr with the rrr unending.

And that was the only sound that broke the quiet of the night.

. . . . . .

Great was the excitement next morning in Philadelphia! Very early was it known what had passed at the meeting of the Institute. Everyone knew of the appearance of the mysterious engineer named Robur — Robur the Conqueror — and the tumult among the balloonists, and his inexplicable disappearance.

But it was quite another thing when all the town heard that the president and secretary of the club had also disappeared during the night.

Long and keen was the search in the city and neighborhood! Useless! The newspapers of Philadelphia, the newspapers of Pennsylvania, the newspapers of the United States reported the facts and explained them in a hundred ways, not one of which was the right one. Heavy rewards were offered, and placards were pasted up, but all to no purpose. The earth seemed to have opened and bodily swallowed the president and secretary of the Weldon Institute.

CHAPTER VI

The President and Secretary Suspend Hostilities

A BANDAGE over the eyes, a gag in the mouth, a cord round the wrists, a cord round the ankles, unable to see, to speak, or to move, Uncle Prudent, Phil Evans, and Frycollin were anything but pleased with their position. Knowing not who had seized them, nor into what they had been thrown like parcels in a goods wagon, nor where they were, nor what was reserved for them—it was enough to exasperate even the most patient of the ovine race, and we know that the members of the Weldon Institute were not precisely sheep as far as patience went. With his violence of character we can easily imagine how Uncle Prudent felt. One thing was evident, that Phil Evans and he would find it difficult to attend the club next evening.

As to Frycollin, with his eyes shut and his mouth closed, it was impossible for him to think of anything. He was more dead than alive.

For an hour the position of the prisoners remained unchanged. No one came to visit them, or to give them that liberty of movement and speech of which they lay in such need. They were reduced to stifled sighs, to grunts emitted over and under their gags, to everything that betrayed anger kept dumb and fury imprisoned, or rather bound down. Then after many fruitless efforts they remained for some time as though lifeless. Then as the sense of sight was denied them they tried by their sense of hearing to obtain some indication of the nature of this disquieting state of things. But in vain did they seek for any other sound than an interminable and inexplicable f-r-r-r which seemed to envelope them in a quivering atmosphere.

At last something happened. Phil Evans, regaining his coolness, managed to slacken the cord which bound his wrists. Little by little the knot slipped, his fingers slipped over each other, and his hands regained their usual freedom.

A vigorous rubbing restored the circulation. A moment after he had slipped off the bandage which bound his eyes, taken the gag out of his mouth, and cut the cords round his ankles with his knife. An American who has not a bowie-knife in his pocket is no longer an American

But if Phil Evans had regained the power of moving and speaking, that was all. His eyes were useless to him—at present at any rate. The prison was quite dark, though about six feet above him a feeble gleam of light came in through a kind of loophole.

As may be imagined, Phil Evans did not hesitate to at once set free his rival A few cuts with the bowie settled the knots which bound him foot and hand.

Immediately Uncle Prudent rose to his knees and snatched away his bandage and his gag.

"Thanks," said he, in a stifled voice

"No!" said the other, "no thanks."

"Phil Evans?"

"Uncle Prudent?"

"Here we are no longer the president and secretary of the Weldon Institute. We are adversaries no more."

"You are right," answered Evans. "We are now only two men agreed to avenge ourselves on a third whose attempt deserves severe reprisals. And this third is——"

"Robur!"

"It is Robur!"

On this point both were absolutely in accord. On this subject there was no fear of dispute.

"And your servant?" said Phil Evans, pointing to Frycollin, who was puffing like a grampus. "We must set him free."

"Not yet," said Uncle Prudent. "He would overwhelm us with his jeremiads, and we have something else to do than abuse each other.

"What is that, Uncle Prudent?"

"To save ourselves if possible."

"And even if it is impossible."

"You are right; even if it is impossible."

There could be no doubt that this kidnapping was due to Robur, for an ordinary thief would have relieved them of their watches, jewelry, and purses, and thrown their bodies in the Schuylkill with a good gash in their throats instead of throwing them to the bottom of—— Of what? That was a serious question, which would have to be answered before attempting an escape with any chance of success.

"Phil Evans," began Uncle Prudent, "if, when we came away from our meeting, instead of indulging in amenities to which we need not recur, we had kept our eyes more open, this would not have happened. Had we remained in the streets of Philadelphia there would have been none of this. Evidently Robur foresaw what would happen at the club, and had placed some of his bandits on guard at the door. When we left Walnut Street these fellows must have watched us and followed us, and when we imprudently ventured into Fairmount Park they went in for their little game."

"Agreed," said Evans. "We were wrong not to go straight home."

"It is always wrong not to be right," said Prudent.

Here a long-drawn sigh escaped from the darkest corner of the prison. "What is that?" asked Evans.

"Nothing! Frycollin is dreaming."

"Between the moment we were seized a few steps out into the clearing and the moment we were thrown in here only two minutes elapsed. It is thus evident that these people did not take us out of Fairmount Park."

"And if they had done so we should have felt we were being moved."

"Undoubtedly; and consequently we must be in some vehicle, perhaps some of those long prairie wagons, or some show-caravan——"

"Evidently! For if we were in a boat moored on the Schuylkill we should have noticed the movement due to the current——"

"That is so; and as we are still in the clearing, I think that now is the time to get away, and we can return later to settle with this Robur ——"

"And make him pay for this attempt on the liberty of two citizens of the United States."

"And he shall pay pretty dearly!"

"But who is this man? Where does he come from? Is he English, or German, or French——"

"He is a scoundrel, that is enough!" said Uncle Prudent. "Now to work." And then the two men, with their hands stretched out and their fingers wide apart, began to feel round the walls to find a joint or crack.

Nothing. Nothing; not even at the door. It was closely shut and it was impossible to shoot back the lock. All that could be done was to make a hole, and escape through the hole. It remained to be seen if the knives could cut into the walls.

"But whence comes this never-ending rustling?" asked Evans, who was much impressed at the continuous f-r-r-r.

"The wind, doubtless," said Uncle Prudent.

"The wind! But I thought the night was quite calm."

"So it was. But if it isn't the wind, what can it be?"

Phil Evans got out the best blade of his knife and set to work on the wall near the door. Perhaps he might make a hole which would enable him to open it from the outside should it be only bolted or should the key have been left in the lock.

He worked away for some minutes. The only result was to nip up his knife, to snip off its point, and transform what was left of the blade into a saw.

"Doesn't it cut?" asked Uncle Prudent.

"No."

"Is the wall made of sheet iron?"

"No; it gives no metallic sound when you hit it."

"Is it of ironwood?"

"No; it isn't iron and it isn't wood."

"What is it then?"

"Impossible to say. But, anyhow, steel doesn't touch it."

Uncle Prudent, in a sudden outburst of fury, began to rave and stamp on the sonorous planks, while his hands sought to strangle an imaginary Robur.

"BE calm, Prudent, be calm! You have a try." Uncle Prudent had a try, but the knife could do nothing against a wall which its best blades could not even scratch. The wall seemed to be made of crystal.

So it became evident that all flight was impracticable except through the door, and for a time they must resign themselves to their fate—not a very pleasant thing for the Yankee temperament, and very much to the disgust of these eminently practical men. But this conclusion was not arrived at without many objurgations and loud-sounding phrases hurled at this Robur—who, from what had been seen of him at the Weldon Institute, was not the sort of man to trouble himself much about them.

Suddenly Frycollin began to give unequivocal signs of being unwell. He began to writhe in a most lamentable fashion, either with cramp in his stomach or in his limbs; and Uncle Prudent, thinking it his duty to put an end to these gymnastics, cut the cords that bound him.

He had cause to be sorry for it. Immediately there was poured forth an interminable litany, in which the terrors of fear were mingled with the tortures of hunger. Frycollin was no worse in his brain than in his stomach, and it would have been difficult to

decide to which organ the chief cause of the trouble should be assigned.

"Frycollin!" said Uncle Prudent.

"Master Uncle! Master Uncle!" answered the negro between two of his lugubrious howls.

"It is possible that we are doomed to die of hunger in this prison, but we have made up our minds not to succumb until we have availed ourselves of every means of alimentation to prolong our lives."

"To eat me?" exclaimed Frycollin.

"As is always done with a negro under such circumstances! So you had better not make yourself too obvious——"

"Or you'll have your bones picked!" said Evans.

And as Frycollin saw he might be used to prolong two existences more precious than his own, he contented himself thenceforth with groaning in quiet.

The time went on, and all attempts to force the door or get through the wall proved fruitless. What the wall was made of was impossible to say. It was not metal; it was not wood; it was not stone. And all the cell seemed to be made of the same stuff. When they stamped on the floor it gave a peculiar sound that Uncle Prudent found difficult to describe; the floor seemed to sound hollow, as if it were not resting directly on the ground of the clearing. And the inexplicable r-r-r-r-r seemed to sweep along below it. All of which was rather alarming.

"Uncle Prudent," said Phil Evans.

"Well?"

"Do you think our prison has been moved at all?"

"Not that I know of."

"Because when we were first caught I distinctly remember the fresh fragrance of the grass and the resinous odor of the park trees. While now, when I take in a good sniff of the air, it seems as though all that had gone."

"So it has."

"Why?"

"We cannot say why unless we admit that the prison has moved; and I say again that if the prison had moved, either as a vehicle on the road or a boat on the stream, we should have felt it."

Here Frycollin gave vent to a long groan, which might have been taken for his last had he not followed it up with several more.

"I expect Robur will soon have us brought before him," said Phil Evans.

"I hope so," said Uncle Prudent. "And I shall tell him——"

"What?"

"That he began by being rude and ended in being unbearable."

Here Phil Evans noticed that day was beginning to break. A gleam, still faint, filtered through the narrow window opposite the door. It ought thus to be about four o'clock in the morning, for it is at that hour in the month of June in this latitude that the horizon of Philadelphia is tinged by the first rays of the dawn.

But when Uncle Prudent sounded his repeater—which was a masterpiece from his colleague's factory—the tiny gong only gave a quarter to three, and the watch had not stopped.

"That is strange!" said Phil Evans. "At a quarter to three it ought still to be night."

"Perhaps my watch has got slow," answered Uncle Prudent.

"A watch of the Wheelton Watch Company!" exclaimed Phil Evans.

Whatever might be the reason, there was no doubt that the day was breaking. Gradually the window became white in the deep darkness of the cell. However, if the dawn appeared sooner than the fortieth parallel permitted, it did not advance with the rapidity peculiar to lower latitudes. This was another observation of Uncle Prudent's—a new inexplicable phenomenon.

"Couldn't we get up to the window and see where we are?"

"We might," said Uncle Prudent. "Frycollin, get up!"

The negro arose.

"Put your back against the wall," continued Prudent, "and you, Evans, get on his shoulders while I buttress him up."

"Right!" said Evans.

An instant afterwards his knees were on Frycollin's shoulders, and his eyes were level with the window. The window was not of lenticular glass like those on shipboard, but was a simple flat pane. It was small, and Phil Evans found his range of view was much limited.

"Break the glass," said Prudent, "and perhaps you will be able to see better."

Phil Evans gave it a sharp knock with the handle of his bowie-knife. It gave back a silvery sound, but it did not break.

Another and more violent blow. The same result.

"It is unbreakable glass!" said Evans.

It appeared as though the pane was made of glass toughened on the Siemens system as after several blows it remained intact.

The light had now increased, and Phil Evans could see for some distance within the radius allowed by the frame.

"What do you see?" asked Uncle Prudent.

"Nothing."

"What? Not any trees?"

"No."

"Not even the top branches?"

"No."

"Then we are not in the clearing?"

"Neither in the clearing nor in the park."

"Don't you see any roofs of houses or monuments?" said Prudent, whose disappointment and anger were increasing rapidly.

"No."

"What! Not a flagstaff, nor a church tower, nor a chimney?"

"Nothing but space."

As he uttered the words the door opened. A man appeared on the threshold. It was Robur.

"Honorable balloonists!" he said, in a serious voice, "you are now free to go and come as you like."

"Free!" exclaimed Uncle Prudent.

"Yes—within the limits of the Albatross!"

Uncle Prudent and Phil Evans rushed out of their prison. And what did they see?

Four thousand feet below them the face of a country they sought in vain to recognize.

CHAPTER VII

On Board the Albatross

"WHEN will man cease to crawl in the depths to live in the azure and quiet of the sky?" To this question of Camille Flammarion's the answer is easy. It will be when the progress of mechanics has enabled us to solve the problem of aviation. And in a few years—as we can foresee—a more practical utilization of electricity will do much towards that solution.

In 1783, before the Montgolfier brothers had built their fire-balloon, and Charles, the physician, had devised his first aerostat, a few adventurous spirits had dreamt of the conquest of space by mechanical means. The first inventors did not think of apparatus lighter than air; for that the science of their time did not allow them to imagine. It was to contrivances heavier than air, to flying machines in imitation of the birds, that they trusted to realize aerial locomotion.

This was exactly what had been done by that madman Icarus, the son of Dædalus, whose wings, fixed together with wax, had melted as they approached the sun.

But without going back to mythological times, without dwelling on Archytas of Tarentum, we find in the works of Dante of Perugia, of Leonardo da Vinci and Guidotti, the idea of machines made to move through the air. Two centuries and a half afterwards inventors began to multiply. In 1742 the Marquis de Bacqueville designed a system of wings, tried it over the Seine, and fell and broke his arm. In 1768 Paucton conceived the idea of an apparatus with two screws, suspensive and propulsive. In 1781 Meerwein, the architect of the Prince of Baden, built an orthopteric machine, and protested against the tendency of the aerostats which had just been invented. In 1784 Launoy and Bienvenu had maneuvered a helicopter worked by springs. In 1808 there were the attempts at flight by the Austrian Jacques Degen. In 1810 came the pamphlet by Deniau of Nantes, in which the principles of "heavier than air" are laid down. From 1811 to 1840 came the inventions and researches of Derblinger, Vigual, Sarti, Dubochet, and Cagniard de Latour. In 1842 we have the Englishman Henson, with his system of inclined planes and screws worked by steam. In 1845 came Cossus and his ascensional screws. In 1847 came Camille Vert and his helicopter made of birds' wings. In 1852 came Letur with his system of guidable parachutes, whose trial cost him his life; and in the same year came Michael Loup with his plan of gliding through the air on four revolving wings. In 1853 came Béléguic and his aeroplane with the traction screws, Vaussin-Chardannes with his guidable kite, and George Cauley with his flying-machines driven by gas. From 1854 to 1863 appeared Joseph Pline with several patents for aerial systems. Bréant, Carlingford, Le Bris, Du Temple, Bright, whose ascensional screws were left-handed; Smythies, Panafieu, Crosnier, etc. At length, in 1863, thanks to the efforts of Nadar, a society of "heavier than air" was founded in Paris. There the inventors could experiment with the machines, of which many were patented. Ponton d'Amécourt and his steam helicopter, La Landelle and his system of combining screws with inclined planes and parachutes, Louvrié and his aeroscape, Esterno and his mechanical bird, Groof and his apparatus with wings worked by levers. The impetus was given, inventors invented, calculators calculated all that could render aerial locomotion practicable. Bourcart, Le Bris, Kaufmann, Smyth, Stringfellow, Prigent, Danjard, Pomés and De la Pauze, Moy, Pénaud, Jobert, Haureau de Villeneuve, Achenbach, Garapon, Duchesne, Danduran, Parisel, Dieuaide, Melkiseff, Forlanini, Bearey, Tatin, Dandrieux, Edison, some with wings or screws, others with inclined planes, imagined, created, constructed, perfected their flying machines, ready to do their work, once there came to be applied to them by some inventor a motor of adequate power and excessive lightness.

This list may be a little long, but that will be forgiven, for it is necessary to give the various steps in the ladder of aerial locomotion, on the top of which appeared Robur the Conqueror. Without these attempts, these experiments of his predecessors, how could the inquirer have conceived so perfect an apparatus? And though he had but contempt for those who obstinately worked away in the direction of balloons, he held in high esteem all those partisans of "heavier than air," English, American, Italian, Austrian, French—and particularly French—whose work had been perfected by him, and led him to design and then to build this flying machine known as the Albatross, which he was guiding through the currents of the atmosphere.

"The pigeon flies!" had exclaimed one of the most persistent adepts at aviation.

"They will crowd the air as they crowd the earth!" said one of his most excited partisans.

"From the locomotive to the aeromotive!" shouted the noisiest of all, who had turned on the trumpet of publicity to awaken the Old and New Worlds.

Nothing, in fact, is better established, by experiment and calculation, than that the air is highly resistant. A circumference of only a yard in diameter in the shape of a parachute can not only impede descent in air, but can render it isochronous. That is a fact.

It is equally well known that when the speed is great the work of the weight varies in almost inverse ratio to the square of the speed, and therefore becomes almost insignificant.

It is also known that as the weight of a flying animal increases, the less is the proportional increase in the surface beaten by the wings in order to sustain it, although the motion of the wings becomes slower.

A flying machine must therefore be constructed to take advantage of these natural laws, to imitate the bird, "that admirable type of aerial locomotion," according to Dr. Marcy, of the Institute of France.

In short, the contrivances likely to solve the problem are of three kinds:

1. Helicopters or spiralifers, which are simply screws with vertical axes.

2. Orthopters, machines which endeavour to reproduce the natural flight of birds.

3. Aeroplanes, which are merely inclined planes like kites, but towed or driven by screws.

Each of these systems has had and still has its partisans obstinately resolved not to give way in the slightest particular.

HOWEVER, Robur, for many reasons, had rejected the two first.

The orthopter, or mechanical bird, offers certain advantages, no doubt. That the work and experiments of M. Renard in 1884 have sufficiently proved. But, as has been said, it is not necessary to copy Nature servilely. Locomotives are not copied from the hare, nor are ships copied from the fish To the first we have put wheels which are not legs; to the second we have put screws which are not fins. And they do not do so badly. Besides what is this mechanical movement in the flight of birds, whose action is so complex? Has not Doctor Marcy suspected that the feathers open during the return of the wings so as to let the air through them? And is not that rather a difficult operation for an artificial machine?

On the other hand, aeroplanes have given many good results. Screws opposing a slanting plane to the bed of air will produce an ascensional movement, and the models experimented on have shown that the disposable weight, that is to say the weight it is possible to deal with as distinct from that of the apparatus, increases with the square of the speed. Herein the aeroplane has the advantage over the aerostat even when the aerostat is furnished with the means of locomotion.

Nevertheless Robur had thought that the simpler his contrivance the better. And the screws—the Saint Helices that had been thrown in his teeth at the Weldon Institute—had sufficed for all the needs of his flying machine. One series could hold it suspended in the air, the other could drive it along under conditions that were marvelously adapted for speed and safety.

If the orthopter—striking like the wings of a bird—raised itself by beating the air, the helicopter raised itself by striking the air obliquely with the fins of the screw as it mounted on an inclined plane. These fins, or arms, are in reality wings, but wings disposed as a helix instead of as a paddle wheel. The helix advances in the direction of its axis. Is the axis vertical? Then it moves vertically. Is the axis horizontal? Then it moves horizontally.

The whole of Robur's flying apparatus depended on these two movements, as will be seen from the following detailed description, which can be divided under three heads—the platform, the engines of suspension and propulsion, and the machinery.

Platform.—This was a framework a hundred feet long and twelve wide, a ship's deck in fact, with a projecting prow Beneath was a hull solidly built, enclosing the engines, stores, and provisions of all sorts, including the water tanks. Round the deck a few light uprights supported a wire trellis that did duty for bulwarks. On the deck were three houses, whose compartments were used as cabins for the crew, or as machine-rooms. In the center house was the machine which drove the lifting helices, in that forward was the machine that drove the bow screw, in that aft was the machine that drove the stern screw. In the bow were the cook's galley and the crew's quarters; in the stern were several cabins, including that of the engineer, the saloon, and above them all a glass house in which stood the helmsman, who steered the vessel by means of a powerful rudder. All these cabins were lighted by portholes filled with toughened glass, which has ten times the resistance of ordinary glass. Beneath this hull was a system of flexible springs to ease off the concussion when it became advisable to land.

Engines of suspension and propulsion.—Above the deck rose thirty seven vertical axes, fifteen along each side, and seven, more elevated in the centre. The Albatross might be called a clipper with thirty-seven masts. But these masts instead of sails bore each two horizontal screws, not very large in spread or diameter, but driven at prodigious speed. Each of these axes had its movement independent of the rest, and each alternate one spun round in a different direction from the others, so as to avoid any tendency to gyration. Hence the screws as they rose on the vertical column of air retained their equilibrium by their horizontal resistance. Consequently the apparatus was furnished with seventy-four lifting screws whose three wings were connected by a metallic circle which economized their motive force. In front and behind, mounted on horizontal axes, were two propelling screws, each with four arms. These screws were of much larger diameter than the lifting ones, but could be worked at quite their speed. In fact, the vessel combined the system of Cossus, La Landelle, and Ponton d'Amécourt, as perfected by Robur. But it was in the choice and application of his motive force that he could claim to be an inventor.

Machinery.—Robur had not availed himself of the vapor of water or other liquids, nor compressed air and other elastic gases, nor explosive mixtures capable of producing mechanical motion. He employed electricity, that agent which one day will be the soul of the industrial world. But he required no electro-generator to produce it All he trusted to were batteries and accumulators. What were the elements of these batteries, and what were the acids he used, Robur only knew. And the construction of the accumulators was kept equally secret Of what were their positive and negative plates? None could say. The engineer took good care—and not unreasonably—to keep his secret unpatented. One thing was unmistakable, and that was that the batteries were of extraordinary strength; and the accumulators left those of Faure-Sellon-Volckmar very far behind in yielding currents whose ampères ran into figures up to then unknown. Thus there was obtained a power to drive the screws and communicate a suspending and propelling force in excess of all his requirements under any circumstances.

But—it is as well to repeat it—this belonged entirely to Robur. He kept it a close secret. And, if the president and secretary of the Weldon Institute did not happen to discover it, it would probably be lost to humanity.

It need not be shown that the apparatus possessed sufficient stability Its center of gravity proved that at once. There was no danger of its making alarming angles with the horizontal, still less of its capsizing.

And now for the metal used by Robur in the construction of his aeronef—a name which can be exactly applied to the Albatross. What was this material, so hard that the bowie-knife of Phil Evans could not scratch it, and Uncle Prudent could not explain its nature? Simply paper!

For some years this fabrication had been making considerable progress. Unsized paper, with the sheets impregnated with dextrin and starch and squeezed in hydraulic presses, will form a material hard like steel. There are made of it pulleys, rails, and wagon-wheels, much more solid than metal wheels, and far

lighter. And it was this lightness and solidity which Robur availed himself of in building his aerial locomotive. Everything—framework, hull, houses, cabins—were made of straw paper turned hard as metal by compression, and—what was not to be despised in an apparatus flying at great heights—incombustible. The different parts of the engines and the screws were made of gelatinized fiber, which combined in sufficient degree flexibility with resistance. This material could be used in every form. It was insoluble in most gases and liquids, acids or essences, to say nothing of its insulating properties, and it proved most valuable in the electric machinery of the Albatross.

Robur, his mate Tom Turner, an engineer and two assistants, two steersmen and a cook—eight men all told— formed the crew of the aeronef, and proved ample for all the maneuvers required in aerial navigation. There were arms of the chase and of war; fishing appliances; electric lights; instruments of observation, compasses, and sextants for checking the course, thermometers for studying the temperature, different barometers, some for estimating the heights attained, others for indicating the variations of atmospheric pressure; a storm-glass for forecasting tempests; a small library; a portable printing press; a field-piece mounted on a pivot, breech-loading and throwing a three-inch shell; a supply of powder, bullets, dynamite cartridges; a cooking-stove warmed by currents from the accumulators; a stock of preserved meats and vegetables sufficient to last for months. Such were the outfit and stores of the aeronef—in addition to the famous trumpet.

There was besides a light india-rubber boat, insubmersible, which could carry eight men on the surface of a river, a lake, or a calm sea.

But were there any parachutes in case of accident? No. Robur did not believe in accidents of that kind. The axes of the screws were independent. The stoppage of a few would not affect the motion of the others; and if only half were working, the Albatross could keep afloat in her natural element.

"And with her," said Robur to his guests—guests in spite of themselves—"I am master of the seventh part of the world, larger than Africa, Oceania, Asia, the Americas and Europe, this aerial Icarian sea, which millions of Icarians will one day people."

CHAPTER VIII

The Balloonists Refuse to be Convinced

THE president of the Weldon Institute was stupefied; his companion was astonished. But neither of them would allow any of their very natural amazement to be visible.

The valet Frycollin did not conceal his terror at finding himself borne through space on such a machine, and he took no pains whatever to hide it.

The ascensional screws were rapidly spinning overhead. Fast as they were going, they would have to triple their speed if the Albatross was to ascend to higher zones. The two propellors were running very easily and driving the ship at about eleven knots an hour

As they leaned over the rail the passengers of the Albatross could perceive a long sinuous liquid ribbon which meandered like a mere brook through a varied country amid the gleaming of many lagoons obliquely struck by the rays of the sun. The brook was a river, one of the most important in that district. Along its left bank was a chain of mountains extending out of sight.

"And will you tell us where we are?" asked Uncle Prudent, in a voice tremulous with anger.

"I have nothing to teach you," answered Robur.

"And will you tell us where we are going?" asked Phil Evans.

"Through space."

"And how long will that last?"

"Until it ends."

"Are we going round the world?" asked Phil Evans ironically.

"Further than that," said Robur.

"And if this voyage does not suit us?" asked Uncle Prudent.

"It will have to suit you."

That is a foretaste of the nature of the relations that were to obtain between the master of the Albatross and his guests, not to say his prisoners. Manifestly he wished to give them time to cool down, to admire the marvelous apparatus which was bearing them through the air, and doubtless to compliment the inventor. And so he went off to the other end of the deck, leaving them to examine the arrangement of the machinery and the management of the ship or to give their whole attention to the landscape which was unrolling beneath them.

"Uncle Prudent," said Evans, "unless I am mistaken we are flying over Eastern Canada. That river in the northwest is the St. Lawrence. That town we are leaving behind is Quebec."

It was indeed the old city of Champlain, whose zinc roofs were shining like reflectors in the sun. The Albatross must thus have reached the forty-sixth degree of north latitude, and thus was explained the premature advance of the day with the abnormal prolongation of the dawn.

"Yes," said Phil Evans, "there is the town in its amphitheater, the hill with its citadel, the Gibraltar of North America. There are the cathedrals. There is the Custom House with its dome surmounted by the British flag!"

Phil Evans had not finished before the Canadian city began to slip into the distance.

The clipper entered a zone of light clouds, which gradually shut off a view of the ground.

Robur, seeing that the president and secretary of the Weldon Institute had directed their attention to the external arrangements of the Albatross, walked up to them and said:

"Well, gentlemen, do you believe in the possibility of aerial locomotion by machines heavier than air?"

It would have been difficult not to succumb to the evidence. But Uncle Prudent and Phil Evans did not reply.

"You are silent," continued the engineer. "Doubtless hunger makes you dumb! But if I undertook to carry you through the air, I did not think of feeding you on such a poorly nutritive fluid. Your first breakfast is waiting for you."

As Uncle Prudent and Phil Evans were feeling the pangs of hunger somewhat keenly they did not care to stand upon ceremony. A meal would commit them to nothing; and when Robur put them back on the ground they could resume full liberty of action.

And so they followed into a small dining-room in the aftermost house. There they found a well-laid table at which they could take their meals during the

voyage. There were different preserves; and, among other things, was a sort of bread made of equal parts of flour and meat reduced to powder and worked together with a little lard, which boiled in water made excellent soup; and there were fried rashers of bacon; and for drink there was tea.

Neither had Frycollin been forgotten. He was taken forward, and there found some strong soup made of this bread. In truth he had to be very hungry to eat at all, for his jaws shook with fear, and almost refused to work. "If it was to break!—if it was to break!" said the unfortunate negro. Hence continual faintings. Only think! A fall of over four thousand feet, which would smash him to a jelly!

An hour afterwards Uncle Prudent and Phil Evans appeared on the deck. Robur was no longer there. At the stern the man at the wheel in his glass cage, his eyes fixed on the compass, followed imperturbably without hesitation the route given by the engineer.

As for the rest of the crew, breakfast probably kept them from their posts. An assistant engineer, examining the machinery, went from one house to the other.

If the speed of the ship was great the two colleagues could only estimate it imperfectly, for the Albatross had passed through the cloud zone which the sun showed some four thousand feet below.

"I can hardly believe it," said Phil Evans.

"Don't believe it!" said Uncle Prudent. And going to the bow they looked out towards the western horizon.

"Another town," said Phil Evans.

"Do you recognize it?"

"Yes! It seems to me to be Montreal."

"Montreal? But we only left Quebec two hours ago!"

"That proves that we must be going at a speed of seventy-five miles an hour."

Such was the speed of the aeronef; and if the passengers were not inconvenienced by it, it was because they were going with the wind. In a calm such speed would have been difficult and the rate would have sunk to that of an express. In a head-wind the speed would have been impossible.

Phil Evans was not mistaken. Below the Albatross appeared Montreal, easily recognizable by the Victoria Bridge, a tubular bridge thrown over the St. Lawrence like the railway viaduct over the Venice lagoon. Soon they could distinguish the town's wide streets, its huge shops, its palatial banks, its cathedral, recently built on the model of St. Peter's at Rome, and then Mount Royal, which commands the city and forms a magnificent park.

Luckily Phil Evans had visited the chief towns of Canada, and could recognize them without asking Robur. After Montreal they passed Ottawa, whose falls, seen from above, looked like a vast cauldron in ebullition, throwing off masses of steam with grand effect.

"There is the Parliament House."

And he pointed out a sort of Nuremburg toy planted on a hill top. This story with its polychrome architecture resembled the House of Parliament in London much as the Montreal cathedral resembles St. Peter's at Rome. But that was of no consequence; there could be no doubt it was Ottawa.

Soon the city faded off towards the horizon, and formed but a luminous spot on the ground

IT was almost two hours before Robur appeared. His mate, Tom Turner, accompanied him. He said only three words. These were transmitted to the two assistant engineers in the fore and aft engine-houses. At a sign the helmsman changed the direction of the Albatross a couple of points to the south-west; at the same time Uncle Prudent and Phil Evans felt that a greater speed had been given to the propellers.

In fact, the speed had been doubled, and now surpassed anything that had ever been attained by terrestrial engines. Torpedo boats do their twenty-two knots an hour; railway trains do their sixty miles an hour; the ice boats on the frozen Hudson do their sixty-five miles an hour; a machine built by the Patterson company, with a cogged wheel, has done its eighty miles; and another locomotive between Trenton and Jersey City has done its eighty-four.

But the Albatross, at full speed, could do her hundred and twenty miles an hour, or 176 feet per second. This speed is that of the storm which tears up trees by the roots. It is the mean speed of the carrier pigeon, and is only surpassed by the flight of the swallow (220 feet per second), and that of the swift (274 feet per second).

In a word, as Robur had said, the Albatross, by using the whole force of her screws, could make the tour of the globe in two hundred hours, or less than eight days.

Is it necessary to say so? The phenomenon whose appearance had so much puzzled the people of both worlds was the aeronef of the engineer. The trumpet which blared its startling fanfares through the air was that of the mate, Tom Turner. The flag planted on the chief monuments of Europe, Asia, America, was the flag of Robur the Conqueror and his Albatross.

And if up to then the engineer had taken many precautions against being recognized, if by preference he traveled at night, clearing the way with his electric lights, and during the day vanishing into the zones above the clouds, he seemed now to have no wish to keep his secret hidden. And if he had come to Philadelphia and presented himself at the meeting of the Weldon Institute, was it not that they might share in his prodigious discovery, and that he might convince *ipso facto* the most incredulous? We know how he had been received, and we see what reprisals he had taken on the president and secretary of the club.

Again did Robur approach his prisoners, who affected to be in no way surprised at what they saw, of what had succeeded in spite of them. Evidently beneath the cranium of these two Anglo-Saxon heads there was a thick crust of obstinacy, which would not be easy to remove.

On his part, Robur did not seem to notice anything particular, and coolly continued the conversation which he had begun two hours before.

"Gentlemen," said he, "you ask yourselves doubtless if this apparatus, so marvelously adapted for aerial locomotion is susceptible to receiving greater speed. It is not worth while to conquer space if we cannot devour it. I wanted the air to be a solid support to me, and it is. I saw that to struggle against the wind I must be stronger than the wind, and I am.

I had no need of sails to drive me, nor oars nor wheels to push me, nor rails to give me a faster road. Air is what I wanted, that was all. Air surrounds me as water surrounds the submarine boat, and in it my propellers act like the screws of a steamer. That is how I solved the problem of aviation. That is what a balloon will never do, nor will any machine that is lighter than air."

Silence, absolute, on the part of the colleagues, which did not for a moment disconcert the engineer. He contented himself with a half-smile, and continued in his interrogative style, "Perhaps you ask if to this power of the Albatross to move horizontally there is added an equal power of vertical movement—in a word, if, when we visit the higher zones of the atmosphere, we can compete with an aerostat? Well, I should not advise you to enter the Go-ahead against her!"

The two colleagues shrugged their shoulders. That was probably what the engineer was waiting for.

Robur made a sign. The propelling screws immediately stopped, and after running for a mile the Albatross pulled up motionless.

At a second gesture from Robur the ascensional helices revolved at a speed that can only be compared to that of a siren in acoustical experiments. Their f-r-r-r-r rose nearly an octave in the scale of sound, diminishing gradually in intensity as the air became more rarefied, and the machine rose vertically, like a lark singing his song in space.

"Master! Master!" shouted Frycollin. "See that it doesn't break!"

A smile of disdain was Robur's only reply. In a few minutes the Albatross had attained the height of 8,700 feet, and extended the range of vision by seventy miles, the barometer having fallen 480 millimeters.

Then the Albatross descended. The diminution of the pressure in high altitudes leads to the diminution of oxygen in the air, and consequently in the blood. This has been the cause of several serious accidents which have happened to aeronauts, and Robur saw no reason to run any risk.

The Albatross thus returned to the height she seemed to prefer, and her propellers beginning again, drove her off to the southwest.

"Now, sirs, if that is what you wanted you can reply."

Then, leaning over the rail, he remained absorbed in contemplation.

When he raised his head the president and secretary of the Weldon Institute stood by his side.

"Engineer Robur," said Uncle Prudent, in vain endeavoring to control himself, "we have nothing to ask about what you seem to believe, but we wish to ask you a question which we think you would do well to answer."

"Speak."

"By what right did you attack us in Philadelphia in Fairmount Park? By what right did you shut us up in that prison? By what right have you brought us against our will on board this flying machine?"

"And by what right, Messieurs Balloonists, did you insult and threaten me in your club in such a way that I am astonished I came out of it alive?"

"To ask is not to answer," said Phil Evans, "and I repeat, by what right?"

"Do you wish to know?"

"If you please."

"Well, then, by the right of the strongest!"

"That is cynical."

"But it is true."

"And for how long, citizen engineer," asked Uncle Prudent, who was nearly exploding, "for how long do you intend to exercise that right?"

"How can you?" said Robur, ironically, "how can you ask me such a question when you have only to cast down your eyes to enjoy a spectacle unparalleled in the world?"

The Albatross was then sweeping across the immense expanse of Lake Ontario. She had just crossed the country so poetically described by Cooper. Then she followed the southern shore and headed for the celebrated river which pours into it the waters of Lake Erie, breaking them to powder in its cataracts.

In an instant a majestic sound, a roar as of the tempest, mounted towards them; and, as if a humid fog had been projected into the air, the atmosphere sensibly freshened.

Below were the liquid masses. They seemed like an enormous flowing sheet of crystal amid a thousand rainbows due to refraction as it decomposed the solar rays. The sight was sublime.

Before the falls a bridge, stretching like a thread, united one bank to the other. Three miles below was a suspension-bridge, across which a train was crawling from the Canadian to the American bank.

"The falls of Niagara!" exclaimed Phil Evans. And as the exclamation escaped him, Uncle Prudent was doing all he could to admire nothing of these wonders.

A minute afterwards the Albatross had crossed the river which separates the United States from Canada, and was flying over the vast territories of the West.

CHAPTER IX

Across the Prairie

IN one of the cabins of the after-house Uncle Prudent and Phil Evans had found two excellent berths, with clean linen, change of clothes, and traveling-cloaks and rugs. No Atlantic liner could have offered them more comfort. If they did not sleep soundly it was that they did not wish to do so, or rather that their very real anxiety prevented them. In what adventure had they embarked? To what series of experiments had they been invited? How would the business end? and above all, what was Robur going to do with them?

Frycollin, the valet, was quartered forward in a cabin adjoining that of the cook. The neighborhood did not displease him; he liked to rub shoulders with the great in this world. But if he finally went to sleep it was to dream of fall after fall, of projections through space, which made his sleep a horrible nightmare.

However, nothing could be quieter than this journey through the atmosphere, whose currents had grown weaker with the evening. Beyond the rustling of the blades of the screws there was not a sound, except now and then the whistle from some terrestrial locomotive, or the calling of some animal. Strange instinct! These terrestrial beings felt the aeronef glide over them, and uttered cries of terror as it passed. On the morrow, the 14th of June, at five o'clock, Uncle Prudent and Phil Evans were

walking on the deck of the Albatross. Nothing had changed since the evening; there was a look-out forward, and the helmsman was in his glass cage.

Why was there a look-out? Was there any chance of collision with another such machine? Certainly not. Robur had not yet found imitators. The chance of encountering an aerostat gliding through the air was too remote to be regarded. In any case it would be all the worse for the aerostat—the earthen pot and the iron pot. The Albatross had nothing to fear from the collision.

But what could happen? The aeronef might find herself like a ship on a lee shore if a mountain that could not be outflanked or passed barred the way. These are the reefs of the air, and they have to be avoided as a ship avoids the reefs of the sea. The engineer, it is true, had given the course, and in doing so had taken into account the altitude necessary to clear the summits of the high lands in the district. But as the aeronef was rapidly nearing a mountainous country, it was only prudent to keep a good lookout, in case some slight deviation from the course became necessary.

Looking at the country beneath them, Uncle Prudent and Phil Evans noticed a large lake, whose lower southern end the Albatross had just reached. They concluded, therefore that during the night the whole length of Erie had been traversed, and that, as they were going due west, they would soon be over Lake Michigan. "There can be no doubt of it," said Phil Evans, "and that group of roofs on the horizon is Chicago."

He was right. It was indeed the city from which the seventeen railways diverge, the Queen of the West, the vast reservoir into which flow the products of Indiana, Ohio, Wisconsin, Missouri, and all the states which form the western half of the Union.

Uncle Prudent, through an excellent telescope he had found in his cabin, easily recognized the principal buildings. His colleague pointed out to him the churches and public edifices, the numerous "elevators" or mechanical granaries, and the huge Sherman Hotel, whose windows seemed like a hundred glittering points on each of its faces.

"If that is Chicago," said Uncle Prudent, "it is obvious that we are going farther west than is convenient for us if we are to return to our starting place."

And, in fact, the Albatross was traveling in a straight line from the Pennsylvania capital.

But if Uncle Prudent wished to ask Robur to take him eastwards he could not then do so. That morning the engineer did not leave his cabin. Either he was occupied in some work, or else he was asleep, and the two colleagues sat down to breakfast without seeing him.

The speed was the same as that during last evening. The wind being easterly the rate was not interfered with at all, and as the thermometer only falls a degree centigrade for every seventy meters of elevation the temperature was not insupportable. And so, in chatting and thinking and waiting for the engineer, Uncle Prudent and Phil Evans walked about beneath the forest of screws, whose gyratory movement gave their arms the appearance of semi-diaphanous disks.

The State of Illinois was left by its northern frontier in less than two hours and a half; and they crossed the Father of Waters, the Mississippi, whose double-decked steamboats seemed no bigger than canoes. Then the Albatross flew over Iowa after having sighted Iowa city about eleven o'clock in the morning.

A few chains of hills, "bluffs" as they are called, curved across the face of the country trending from the south to the northwest, whose moderate height necessitated no rise in the course of the aeronef. Soon the bluffs gave place to the large plains of western Iowa and Nebraska—immense prairies extending all the way to the foot of the Rocky Mountains. Here and there were many "rios," affluents or minor affluents of the Missouri. On their banks were towns and villages, growing more scattered as the Albatross sped farther west.

Nothing particular happened during this day. Uncle Prudent and Phil Evans were left entirely to themselves. They hardly noticed Frycollin sprawling at full length in the bow, keeping his eyes shut so that he could see nothing. And they were not attacked by vertigo, as might have been expected. There was no guiding mark, and there was nothing to cause the vertigo, as there would have been on the top of a lofty building. The abyss has no attractive power when it is gazed at from the car of a balloon or deck of an aeronef. It is not an abyss that opens beneath the aeronaut, but an horizon that rises round him on all sides like a cup.

In a couple of hours the Albatross was over Omaha, on the Nebraskan frontier—Omaha city, the real head of the Pacific Railway, that long line of rails, four thousand five hundred miles in length, stretching from New York to San Francisco. For a moment they could see the yellow waters of the Missouri, then the town, with its houses of wood and brick in the center of a rich basin, like a buckle in the iron belt which clasps North America round the waist. Doubtless, also, as the passengers in the aeronef could observe all the details, the inhabitants of Omaha noticed the strange machine. Their astonishment at seeing it gliding overhead could be no greater than that of the president and secretary of the Weldon Institute at finding themselves on board.

Anyhow, the journals of the Union would be certain to notice the fact. It would be the explanation of the astonishing phenomenon which the whole world had been wondering over for some time.

In an hour the Albatross had left Omaha and crossed the Platte River, whose valley is followed by the Pacific Railway in its route across the prairie. Things looked serious for Uncle Prudent and Phil Evans.

"It is real, then, this absurd project of taking us to the Antipodes."

"And whether we like it or not!" exclaimed the other. "Robur had better take care! I am not the man to stand that sort of thing."

"Nor am I!" replied Phil Evans. "But be calm, Uncle Prudent, be calm."

"Be calm!"

"And keep your temper until it is wanted."

By five o'clock they had crossed the eastern countries covered with pines and poplars, and the Albatross was over the appropriately named Bad Lands of Nebraska—a chaos of ochre-colored hills, of mountainous fragments fallen on the soil and broken in their fall. At a distance these blocks take the most fantastic shapes. Here and there amid this enormous game of knucklebones there could be traced the

imaginary ruins of mediæval cities with forts and dungeons, pepper-box turrets, and machicolated towers. And in truth these Bad Lands are an immense ossuary where lie bleaching in the sun myriads of fragments of pachyderms, chelonians, and even, some would have us believe, fossil men, overwhelmed by unknown cataclysms ages and ages ago.

WHEN evening came the whole basin of the Platte River had been crossed, and the plain extended to the extreme limits of the horizon, which rose high owing to the altitude of the Albatross.

During the night there were no more shrill whistles of locomotives or deeper notes of the river steamers to trouble the quiet of the starry firmament. Long bellowings occasionally reached the aeronef from the herds of buffalo that roamed over the prairie in search of water and pasturage. And when they ceased, the trampling of the grass under their feet produced a dull roaring similar to the rushing of a flood, and very different from the continuous f-r-r-r-r of the screws.

Then from time to time came the howl of a wolf, a fox, a wild cat, or a coyote, the *Canis latrans*, whose name is justified by his sonorous bark.

Occasionally came penetrating odors of mint, and sage, and absinthe, mingled with the more powerful fragrance of the conifers which rose floating through the night air.

At last came a menacing yell, which was not due to the coyote. It was the shout of a Redskin, which no Tenderfoot would confound with the cry of a wild beast.

CHAPTER X

Westward—But Whither?

THE next day, the 15th of June, about five o'clock in the morning, Phil Evans left his cabin. Perhaps he would today have a chance of speaking to Robur. Desirous of knowing why he had not appeared the day before, Evans addressed himself to the mate, Tom Turner.

Tom Turner was an Englishman of about forty-five, broad in the shoulders and short in the legs, a man of iron, with one of those enormous characteristic heads that Hogarth rejoiced in.

"Shall we see Mr. Robur today?" asked Phil Evans.

"I don't know," said Turner.

"I need not ask if he had gone out."

"Perhaps he has."

"And when will he come back?"

"When he has finished his cruise."

And Tom went into his cabin.

With this reply they had to be contented. Matters did not look promising, particularly as on reference to the compass it appeared that the Albatross was still steering south-west.

Great was the contrast between the barren tract of the Bad Lands passed over during the night and the landscape then unrolling beneath them.

The aeronef was now more than six hundred miles from Omaha, and over a country which Phil Evans could not recognize because he had never been there before. A few forts to keep the Indians in order crowned the bluffs with their geometric lines, formed oftener of palisades than walls. There were few villages and few inhabitants, the country differing widely from the auriferous lands of Colorado many leagues to the south.

In the distance a long line of mountain crests, in great confusion as yet, began to appear. They were the Rocky Mountains.

For the first time that morning Uncle Prudent and Phil Evans were sensible of a certain lowness of temperature which was not due to a change in the weather, for the sun shone in superb splendor.

"It is because of the Albatross being higher in the air," said Phil Evans.

In fact the barometer outside the central deck-house had fallen 541 millimeters, thus indicating an elevation of about 10,000 feet above the sea. The aeronef was at this altitude owing to the elevation of the ground. An hour before she had been at a height of 13,000 feet, and behind her were mountains covered with perpetual snow.

There was nothing Uncle Prudent and his companion could remember which would lead them to discover where they were. During the night the Albatross had made several stretches north and south at tremendous speed, and that was what had put them out of their reckoning.

After talking over several hypotheses more or less plausible they came to the conclusion that this country encircled with mountains must be the district declared by an Act of Congress in March, 1872, to be the National Park of the United States. A strange region it was. It well merited the name of a park—a park with mountains for hills, with lakes for ponds, with rivers for streamlets, and with geysers of marvelous power instead of fountains.

In a few minutes the Albatross glided across the Yellowstone River, leaving Mount Stevenson on the right, and coasting the large lake which bears the name of the stream. Great was the variety on the banks of this basin, ribbed as they were with obsidian and tiny crystals, reflecting the sunlight on their myriad facets. Wonderful was the arrangement of the islands on its surface; magnificent were the blue reflections of the gigantic mirror. And around the lake, one of the highest in the globe, were multitudes of pelicans, swans, gulls and bernicle geese and divers. In places the steep banks were clothed with green trees, pines and larches, and at the foot of the escarpments there shot upwards innumerable white fumaroles, the vapor escaping from the soil as from an enormous reservoir in which the water is kept in permanent ebullition by subterranean fire.

THE cook might have seized the opportunity of securing an ample supply of trout, the only fish the Yellowstone Lake contains in myriads. But the Albatross kept on at such a height that there was no chance of indulging in a catch which assuredly would have been miraculous.

In three quarters of an hour the lake was passed over, and a little farther on the last was seen of the geyser region, which rivals the finest in Iceland. Leaning over the rail, Uncle Prudent and Phil Evans watched the liquid columns which leaped up as though to furnish the aeronef with a new element. There were the Fan, with the jets shot forth in rays, the Fortress, which seemed to be defended by water-spouts, Old Faithful, with her plume crowned with the rainbows, the Giant, spurting forth a vertical

torrent twenty feet round and more than two hundred feet high.

Robur must evidently have been familiar with this incomparable spectacle, unique in the world, for he did not appear on deck. Was it, then, for the sole pleasure of his guests that he had brought the aeronef above the national domain? If so, he came not to receive their thanks. He did not even trouble himself during the passage of the Rocky Mountains, which the Albatross approached at about seven o'clock.

By increasing the speed of her wings, as a bird rising in its flight, the Albatross would clear the highest ridges of the chain, and sink again over Oregon or Utah. But the maneuver was unnecessary. The passes allowed the barrier to be crossed without ascending for the higher ridges. There are many of these canyons, or steep valleys, more or less narrow, through which they could glide, such as Bridger Canyon, through which runs the Pacific Railway into the Mormon territory, and others to the north and south of it.

It was through one of these that the Albatross headed, after slackening speed so as not to dash against the walls of the canyon. The steersman, with a sureness of hand rendered more effective by the sensitiveness of the rudder, maneuvered his craft as if she were a crack racer in a Royal Victoria yacht race. It was really extraordinary. In spite of all the jealousy of the two advocates of "lighter than air," they could not help being surprised at the perfection of this engine of aerial locomotion.

In less than two hours and a half they were through the Rockies, and the Albatross had resumed her former speed of sixty-two miles an hour. She was steering southwest so as to cut across Utah diagonally as she neared the ground. She had even dropped several hundred yards when the sound of a whistle attracted the attention of Uncle Prudent and Phil Evans.

It was a train on the Pacific Railway on the road to Salt Lake City.

And then, in obedience to an order secretly given, the Albatross dropped still lower so as to chase the train, which was going at full speed. She was immediately sighted. A few heads showed themselves at the doors of the cars. Then numerous passengers crowded the gangways. Some did not hesitate to climb on the roof to get a better view of the flying machine. Cheers came floating up through the air, but no Robur appeared in answer to them.

The Albatross continued her descent, slowing her elevating screws and moderating her speed so as not to leave the train behind. She flew about it like an enormous beetle or a gigantic bird of prey. She headed off to the right and left, and swept on in front, and hung behind, and proudly displayed her flag with the golden sun, to which the conductor of the train replied by waving the Stars and Stripes.

In vain the prisoners, in their desire to take advantage of the opportunity, endeavored to make themselves known to those below. In vain the president of the Weldon Institute roared forth at the top of his voice, "I am Uncle Prudent of Philadelphia!" And the secretary followed suit with, "I am Phil Evans, his colleague!" Their shouts were lost in the thousand cheers with which the passengers greeted the aeronef.

Three or four of the crew of the Albatross had appeared on the deck, and one of them, like sailors when passing a ship less speedy than their own, held out a rope, an ironical way of offering to tow them.

And then the Albatross resumed her original speed, and in half an hour the express was out of sight. About one o'clock there appeared a vast disk, which reflected the solar rays as if it were an immense mirror.

"That ought to be the Mormon capital, Salt Lake City," said Uncle Prudent. And so it was, and the disk was the roof of the Tabernacle, where ten thousand saints can worship at their ease. This vast dome, like a convex mirror, threw off the rays of the sun in all directions.

It vanished like a shadow, and the Albatross sped on her way to the southwest with a speed that was not felt, as it surpassed that of the chasing wind. Soon she was in Nevada, over the silver regions, which the Sierra separates from the golden lands of California.

"We shall certainly reach San Francisco before night," said Phil Evans.

"And then?" asked Uncle Prudent.

It was six o'clock precisely when the Sierra Nevada was crossed by the same pass as that taken by the railway. Only a hundred and eighty miles then separated them from San Francisco, the Californian capital.

At the speed the Albatross was going she would be over the city by eight o'clock.

At this moment Robur appeared on deck. The colleagues walked up to him.

"Engineer Robur," said Uncle Prudent, " we are now on the confines of America! We think the time has come for this joke to end."

"I never joke," said Robur.

He raised his hand. The Albatross swiftly dropped towards the ground, and at the same time such speed was given her as to drive the prisoners into their cabin.

As soon as the door was shut, Uncle Prudent exclaimed, "I could strangle him!"

"We must try to escape!" said Phil Evans.

"Yes; cost what it may!"

A long murmur greeted their ears. It was the beating of the surf on the seashore. It was the Pacific Ocean!

CHAPTER XI

The Wide Pacific

UNCLE PRUDENT and Phil Evans had quite made up their minds to escape. If they had not had to deal with the eight particularly vigorous men who composed the crew of the aeronef they might have tried to succeed by main force. But as they were only two—for Frycollin could only be considered as a quantity of no importance—force was not to be thought of. Hence recourse must be had to strategy as soon as the Albatross again took the ground. Such was what Phil Evans endeavored to impress on his irascible colleague, though he was in constant fear of Prudent aggravating matters by some premature outbreak.

In any case the present was not the time to attempt anything of the sort The aeronef was sweeping along over the North Pacific. On the following morning, that of June 16th, the coast was out of sight. And as

the coast curves off from Vancouver Island up to the Aleutians—belonging to that portion of America ceded by Russia to the United States in 1867—it was highly probable that the Albatross would cross it at the end of the curve, if her course remained unchanged.

How long the night appeared to be to the two friends! How eager they were to get out of their cabins! When they came on deck in the morning the dawn had for some hours been silvering the eastern horizon. They were nearing the June solstice, the longest day of the year in the northern hemisphere, when there is hardly any night along the sixtieth parallel.

Either from custom or intention Robur was in no hurry to leave his deck-house. When he came out this morning he contented himself with bowing to his two guests as he passed them in the stern of the aeronef

And now Frycollin ventured out of his cabin. His eyes red with sleeplessness, and dazed in their look, he tottered along like a man whose foot feels it is not on solid ground. His first glance was at the elevating screws, which were working with gratifying regularity without any signs of haste.

That done, the negro stumbled along to the rail, and grasped it with both hands, so as to make sure of his balance. Evidently he wished to view the country over which the Albatross was flying at the height of seven hundred feet or more.

At first he kept himself well back behind the rail. Then he shook it to make sure it was firm; then he drew himself up; then he bent forward; then he stretched out his head. It need not be said that while he was executing these different maneuvers he kept his eyes shut. At last he opened them.

What a shout! And how quickly he fled! And how deeply his head sank back into his shoulders! At the bottom of the abyss he had seen the immense ocean. His hair would have risen on end—if it had not been wool.

"The sea! the sea!" he cried. And Frycollin would have fallen on the deck had not the cook opened his arms to receive him.

This cook was a Frenchman, and probably a Gascon, his name being François Tapage. If he was not a Gascon he must in his infancy have inhaled the breezes of the Garonne. How did this François Tapage find himself in the service of the engineer? By what chain of accidents had he become one of the crew of the Albatross? We can hardly say; but in any case he spoke English like a Yankee. "Eh, stand up!" said he, lifting the negro by a vigorous clutch at the waist.

"Master Tapage!" said the poor fellow, giving a despairing look at the screws.

"At your service, Frycollin."

"Did this thing ever smash?"

"No, but it will end by smashing."

"Why? Why?"

"Because everything must end."

"And the sea is beneath us!"

"If we are to fall, it is better to fall in the sea."

"We shall be drowned."

"We shall be drowned, but we shall not be smashed to a jelly."

The next moment Frycollin was on all fours, creeping to the back of his cabin.

During this day the aeronef was only driven at moderate speed. She seemed to skim the placid surface of the sea, which lay glistening in the sunshine about a hundred feet beneath. Uncle Prudent and his companion remained in their cabin, so that they did not meet with Robur, who walked about smoking alone or talking to the mate. Only half the screws were working, yet that was enough to keep the apparatus afloat in the lower zones of the atmosphere.

The crew, as a change from the ordinary routine, would have endeavored to catch a few fish, had there been any sign of them; but all that could be seen on the surface of the sea were a few of those yellow-bellied whales which measure about eighty feet in length. These are the most formidable cetaceans in the northern seas, and whalers are very careful in attacking them, for their strength is prodigious. However, in harpooning one of these whales, either with the ordinary harpoon, the Fletcher fuse, or the javelin-bomb, of which there was an assortment on board, there would have been no danger to the men of the Albatross.

But what was the good of such useless massacre? Doubtless to show off the powers of the aeronef to the members of the Weldon Institute. And so Robur gave orders for the capture of one of these monstrous cetaceans.

At the shout of "A whale! a whale!" Uncle Prudent and Phil Evans came out of their cabin. Perhaps there was a whaler in sight! In that case all they had to do to escape from their flying prison was to jump into the sea, and chance being picked up by the vessel

The crew were all on deck. "Shall we try, sir?" asked Tom Turner.

"Yes," said Robur.

In the engine-room the engineer and his assistant were at their posts ready to obey the orders signaled to them. The Albatross dropped towards the sea, and remained, about fifty feet above it.

There was no ship in sight—of that the two colleagues soon assured themselves—nor was there any land to be seen to which they could swim, providing Robur made no attempt to recapture them.

Several jets of water from the spout holes soon announced the presence of the whales as they came to the surface to breathe. Tom Turner and one of the men were in the bow. Within his reach was one of those javelin-bombs, of California make which are shot from an arquebus and which are shaped like a metallic cylinder terminated by a cylindrical bomb armed with a shaft having a barbed point. Robur was a little farther aft, and with his right hand signaled to the engineers, while with his left he directed the steersman. He thus controlled the aeronef in every way, horizontally and vertically, and it is almost impossible to conceive with what speed and precision the Albatross answered to his orders. She seemed a living being, of which he was the soul.

"A whale! a whale!" shouted Tom Turner, as the back of a cetacean emerged from the surface about four cable-lengths in front of the Albatross.

The Albatross swept towards it, and when she was within sixty feet of it she stopped dead.

Tom Turner seized the arquebus, which was resting against a cleat on the rail. He fired, and the projectile, attached to a long line, entered the whale's body. The bomb, filled with an explosive compound,

burst, and shot out a small harpoon with two branches, which fastened into the animal's flesh.

"Look out!" shouted Turner.

Uncle Prudent and Phil Evans, much against their will, became greatly interested in the spectacle.

The whale, seriously wounded, gave the sea such a slap with his tail, that the water dashed up over the bow of the aeronef. Then he plunged to great depth, while the line, which had been previously wetted in a tub of water to prevent its taking fire, ran out like lightning. When the whale rose to the surface he started off at full speed in a northerly direction.

It may be imagined with what speed the Albatross was towed in pursuit. Besides, the propellers had been stopped. The whale was let go as he would, and the ship followed him. Turner stood ready to cut the line in case a fresh plunge should render this towing dangerous.

For half an hour, and perhaps for a distance of six miles, the Albatross was thus dragged along, but it was obvious that the whale was tiring. Then, at a gesture from Robur, the assistant engineers started the propellers astern, so as to oppose a certain resistance to the whale, who was gradually getting closer.

Soon the aeronef was gliding about twenty-five feet above him. His tail was beating the waters with incredible violence, and as he turned over on his back an enormous wave was produced.

SUDDENLY the whale turned up again, so as to take a header, as it were, and then dived with such rapidity that Turner had barely time to cut the line.

The aeronef was dragged to the very surface of the water. A whirlpool was formed where the animal had disappeared. A wave dashed up on to the deck as if the aeronef were a ship driving against the wind and tide.

Luckily, with a blow of the hatchet the mate severed the line, and the Albatross, freed from her tug, sprang aloft six hundred feet under the impulse of her ascensional screws. Robur had maneuvered his ship without losing his coolness for a moment.

A few minutes afterwards the whale returned to the surface—dead. From every side the birds flew down on to the carcass, and their cries were enough to deafen a congress. The Albatross, without stopping to share in the spoil, resumed her course to the west.

In the morning of the 17th of June, at about six o'clock, land was sighted on the horizon. This was the peninsula of Alaska, and the long range of breakers of the Aleutian Islands.

The Albatross glided over the barrier where the fur seals swarm for the benefit of the Russo-American Company. An excellent business is the capture of these amphibians, which are from six to seven feet long, russet in color, and weigh from three hundred to four hundred pounds. There they were in interminable files, ranged in line of battle, and countable by thousands.

Although they did not move at the passage of the Albatross, it was otherwise with the ducks, divers, and loons, whose husky cries filled the air as they disappeared beneath the waves and fled terrified from the aerial monster.

The twelve hundred miles of the Behring Sea between the first of the Aleutians and the extreme end of Kamtschatka were traversed during the twenty-four hours of this day and the following night. Uncle Prudent and Phil Evans found that there was no present chance of putting their project of escape into execution. Flight was not to be thought of among the deserts of Eastern Asia, nor on the coast of the sea of Okhotsk. Evidently the Albatross was bound for Japan or China, and there, although it was not perhaps quite safe to trust themselves to the mercies of the Chinese or Japanese, the two friends had made up their minds to run if the aeronef stopped.

But would she stop? She was not like a bird which grows fatigued by too long a flight, or like a balloon which has to descend for want of gas. She still had food for many weeks, and her organs were of marvelous strength, defying all weakness and weariness.

During the 18th of June she swept over the peninsula of Kamtschatka, and during the day there was a glimpse of Petropaulovski and the volcano of Kloutschew. Then she rose again to cross the Sea of Okhotsk, running down by the Kurile Isles, which seemed to be a breakwater pierced by hundreds of channels. On the 19th, in the morning, the Albatross was over the strait of La Perouse between Saghalien and Northern Japan, and had reached the mouth of the great Siberian river, the Amoor.

Then there came on a fog so dense that the aeronef had to rise above it. At the altitude she was there was no obstacle to be feared, no elevated monuments to hinder her passage, no mountains against which there was risk of being shattered in her flight. The country was only slightly varied. But the fog was very disagreeable, and made everything on board very damp.

All that was necessary was to get above this bed of mist, which was nearly thirteen hundred feet thick, and the ascensional screws being increased in speed, the Albatross was soon clear of the fog and in the sunny regions of the sky. Under these circumstances, Uncle Prudent and Phil Evans would have found some difficulty in carrying out their plan of escape, even admitting that they could leave the aeronef.

During the day, as Robur passed them, he stopped for a moment, and without seeming to attach any importance to what he said, addressed them carelessly as follows: "Gentlemen, a sailing-ship or a steamship caught in a fog from which it cannot escape is always much delayed. It must not move unless it keeps its whistle or its horn going. It must reduce its speed, and any instant a collision may be expected. The Albatross has none of these things to fear. What does fog matter to her? She can leave it when she chooses. The whole of space is hers." And Robur continued his stroll without waiting for an answer, and the puffs of his pipe were lost in the sky.

"Uncle Prudent," said Phil Evans, "it seems that this astonishing Albatross never has anything to fear."

"That we shall see!" answered the president of the Weldon Institute

The fog lasted three days, the 19th, 20th, and 21st of June, with regrettable persistence. An ascent had to be made to clear the Japanese mountain of Fusiyama. When the curtain of mist was drawn aside there lay below them an immense city, with palaces,

villas, gardens, and parks. Even without seeing it Robur had recognized it by the barking of the innumerable dogs, cries of the birds of prey, and above all, by the cadaverous odor which the bodies of its executed criminals gave off into space.

The two colleagues were out on the deck while the engineer was taking his observations in case he thought it best to continue his course through the fog.

"Gentlemen," said he, "I have no reason for concealing from you that this town is Tokio, the capital of Japan."

Uncle Prudent did not reply. In the presence of the engineer he was almost choked, his lungs were short of air.

"This view of Tokio," continued Robur, "is very curious."

"Curious as it may be——" replied Phil Evans.

"It is not as good as Pekin?" interrupted the engineer. "That is what I think, and very shortly you shall have an opportunity of judging."

Impossible to be more agreeable!

The Albatross then gliding southeast, had her course changed four points, so as to head to the eastward.

CHAPTER XII

Through the Himalayas

DURING the night the fog cleared off. There were symptoms of an approaching typhoon —a rapid fall of the barometer, a disappearance of vapor, large clouds of ellipsoid form clinging to a copper sky, and, on the opposite horizon, long streaks of carmine on a slate-colored field, with a large sector quite clear in the north. Then the sea was smooth and calm and at sunset assumed a deep scarlet hue.

Fortunately the typhoon broke more to the south, and had no other result than to sweep away the mist which had been accumulating during the last three days.

In an hour they had traversed the hundred and twenty-five miles of the Corean strait, and while the typhoon was raging on the coast of China, the Albatross was over the Yellow Sea. During the 22nd and 23rd she was over the Gulf of Pechelee, and on the 24th she was ascending the valley of the Peiho on her way to the capital of the Celestial Empire.

Leaning over the rail, the two colleagues, as the engineer had told them, could see distinctly the immense city, the wall which divides it into two parts —the Manchoo town and the Chinese town—the twelve suburbs which surround it, the large boulevards which radiate from its center, the temples with their green and yellow roofs bathed in the rising sun, the grounds surrounding the houses of the mandarins; then in the middle of the Manchoo town the eighteen hundred acres of the Yellow town, with its pagodas, its imperial gardens, its artificial lakes, its mountain of coal which towers above the capital; and in the center of the Yellow town, like a square of a Chinese puzzle enclosed in another, the Red town, that is the imperial palace, with all the peaks of its outrageous architecture.

Below the Albatross the air was filled with a singular harmony. It seemed to be a concert of Æolian harps. In the air were a hundred kites of different forms, made of sheets of palm-leaf, and having at their upper end a sort of bow of light wood with a thin slip of bamboo beneath. In the breath of the wind these slips, with all their notes varied like those of a harmonicon, gave forth a most melancholy murmuring. It seemed as though they were breathing musical oxygen.

It suited Robur's whim to run close up to this aerial orchestra, and the Albatross slowed as she glided through the musical waves which the kites gave off through the atmosphere.

But immediately an extraordinary effect was produced amongst the innumerable population. Beatings of the tomtoms and sounds of other formidable instruments of the Chinese orchestra, gun reports by the thousand, mortars fired in hundreds, all were brought into play to scare away the aeronef. Although the Chinese astronomers may have recognized the aerial machine as the moving body that had given rise to such disputes, it was to the Celestial million, from the humblest tankader to the best-buttoned mandarin, an apocalyptical monster appearing in the sky of Buddha.

The crew of the Albatross troubled themselves very little about these demonstrations. But the strings which held the kites, and were tied to fixed pegs in the imperial gardens, were cut or quickly hauled in; and the kites were either drawn in rapidly, sounding louder as they sank, or else fell like a bird shot through both wings, whose song ends with its last sigh.

A noisy fanfare escaped from Tom Turner's trumpet, and drowned the final notes of the aerial concert. It did not interrupt the terrestrial fusillade. At last a shell exploded a few feet below the Albatross, and then she mounted into the inaccessible regions of the sky.

Nothing happened during the few following days of which the prisoners could take advantage. The aeronef kept on her course to the southwest, thereby showing that it was intended to take her to India. Twelve hours after leaving Pekin Uncle Prudent and Phil Evans caught a glimpse of the Gerat Wall in the neighborhood of Chen-Si. Then, avoiding the Lung mountains, they passed over the valley of the Hoangho and crossed the Chinese border on the Thibet side.

Thibet consists of high table-lands without vegetation, with here and there snowy peaks and barren ravines, torrents fed by glaciers, depressions with glittering beds of salt, lakes surrounded by luxurious forests, with icy winds sweeping over all.

The barometer indicated an altitude of thirteen thousand feet above the level of the sea. At that height the temperature, although it was in the warmest months of the northern hemisphere, was only a little above freezing. This cold, combined with the speed of the Albatross, made the voyage somewhat trying, and although the friends had warm traveling wraps, they preferred to keep to their cabin.

It need hardly be said that to keep the aeronef in this rarefied atmosphere the ascension screws had to be driven at extreme speed. But they worked with perfect regularity, and the sound of their wings almost acted as a lullaby.

During this day, appearing from below about the size of a carrier pigeon, she passed over Garlock, a town of western Thibet, the capital of the province of Gari Khorsum.

On the 27th of June, Uncle Prudent and Phil Evans sighted an enormous barrier, broken here and

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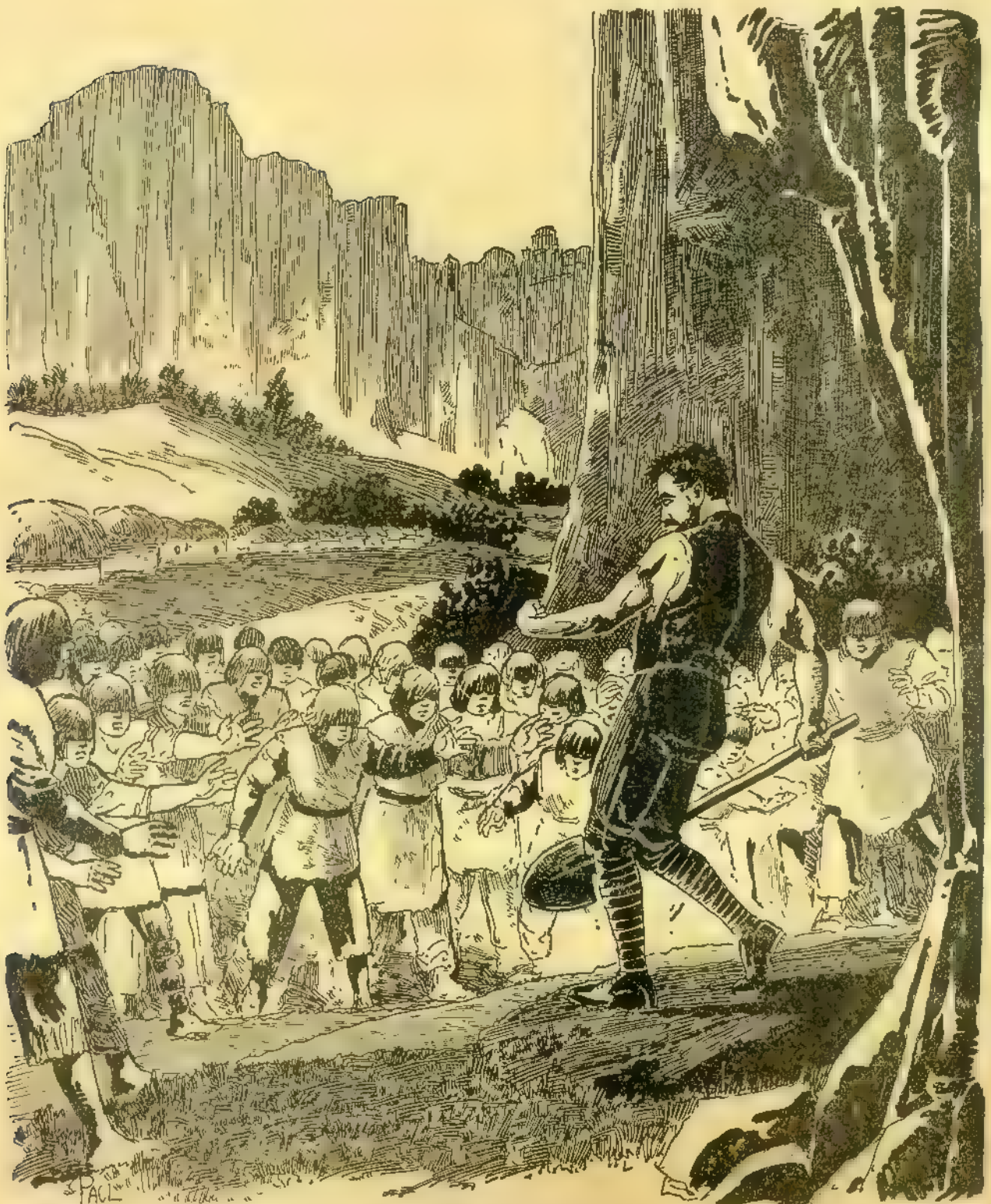
The COUNTRY OF THE BLIND

by H·G·Wells

Author of "The Time Machine," "A Story of the Stone Age," etc.



He gripped his spade still tighter, and advanced down the meadows towards the place of habitation, and directly he moved they converged upon him . . . They were moving in upon him quickly, groping, yet moving rapidly. . . . It was like playing blind man's buff, with every man blindfolded except one

THREE hundred miles and more from Chimborazo, one hundred from snows of Cotopaxi, in the wildest wastes of Ecuador's Andes, there lies that mysterious mountain valley, cut off from the world of men, the Country of the Blind. Long years ago that valley lay so far open to the world that men might come at last through frightful gorges and over an icy pass into its equable meadows; and thither indeed men came, a family or so of Peruvian half-breeds fleeing from the lust and tryanny of an evil Spanish ruler. Then came the stupendous outbreak of Mindobamba, when it was night in Quito for seventeen days, and the water was boiling at Yaguachi and all the fish floating dying even as far as Guayaquil; everywhere along the Pacific slopes there were land-slips and swift thawings and sudden floods, and one whole side of the old Arauca crest slipped and came down in thunder, and cut off the Country of the Blind for ever from the exploring feet of men. But one of these early settlers had chanced to be on the hither side of the gorges when the world had so terribly shaken itself, and he perforce had to forget his wife and his child and all the friends and possessions he had left up there, and start life over again in the lower world. He started it again but ill, blindness overtook him, and he died of punishment in the mines; but the story he told begot a legend that lingers along the length of the Cordilleras of the Andes to this day.

He told of his reason for venturing back from that fastness, into which he had first been carried, lashed to a llama, beside a vast bale of gear, when he was a child. The valley, he said, had in it all that the heart of man could desire—sweet water, pasture, and even climate, slopes of rich brown soil with tangles of a shrub that bore an excellent fruit, and on one side great hanging forests of pine that held the avalanches high. Far overhead, on three sides, vast cliffs of gray-green rock were capped by cliffs of ice; but the glacier stream came not to them but flowed away by the farther slopes, and only now and then huge ice masses fell on the valley side. In this valley it neither rained nor snowed, but the abundant springs gave a rich green pasture, that irrigation would spread over all the valley space. The settlers did well indeed there. Their beasts did well and multiplied, and but one thing marred their happiness. Yet it was enough to mar it greatly. A strange disease had come upon them, and had made all the children born to them there—and indeed, several older children also—blind. It was to seek some charm or antidote against this plague of blindness that he had with fatigue and danger and difficulty returned down the gorge. In those days, in such cases, men did not think of germs and infections but of sins: and it seemed to him that the reason of this affliction must lie in the negligence of these priestless immigrants to set up a shrine so soon as they entered the valley. He wanted a shrine—a handsome, cheap, effectual shrine—to be erected in the valley; he wanted relics and such-like potent things of faith, blessed objects and mysterious medals and prayers. In his wallet he had a bar of native silver for which he would not account; he insisted there was none in the valley with something of the insistence of an inexpert liar. They had all clubbed their money and ornaments together, having little need for such treasure up there, he said, to buy them holy help against their ill. I figure this dim-eyed young mountaineer, sunburnt, gaunt, and anxious, hat-brim clutched feverishly, a man all unused to the ways of the lower world, telling this story to some keen-eyed attentive priest before the great convulsion; I can picture him presently seeking to return with pious and infallible remedies against that trouble, and the infinite dismay with which he must have faced the tumbled vastness where the gorge had once come out. But the rest of his story of mischances is lost to me, save that I know of his evil death after several years. Poor stray from that remoteness! The stream that had once made the gorge now bursts from the mouth of a rocky cave, and the legend his poor, ill-told story set going developed into the legend of a race of blind men somewhere "over there," which one may still hear today.

AND amidst the little population of that now isolated and forgotten valley the disease ran its course. The old became groping and purblind, the young saw but dimly, and the children that were born to them saw never at all. But life was very easy in that snow-rimmed basin, lost to all the world, with neither thorns nor briars, with no evil insects nor any beasts save the gentle breed of llamas they had lugged and thrust and followed up the beds of the shrunken rivers in the gorges up which they had come. The seeing had become purblind so gradually that they scarcely noted their loss. They guided the sightless youngsters hither and thither until they knew the whole valley marvellously, and when at last sight died out among them the race lived on. They had even time to adapt themselves to the blind control of fire, which they made carefully in stoves of stone. They were a simple strain of people at the first, unlettered, only slightly touched with the Spanish civilization, but with something of a tradition of the arts of old Peru and of its lost philosophy. Generation followed generation. They forgot many things; they devised many things. Their tradition of the greater world they came from became mythical in color and uncertain. In all things save sight they were strong and able, and presently the chance of birth and heredity sent one who had an original mind and who could talk and persuade among them, and then afterwards another. These two passed, leaving their effects, and the little community grew in numbers and in understanding, and met and settled social and economic problems that arose. Generation followed generation. There came a time when a child was born who was fifteen generations from that ancestor who went out of the valley with a bar of silver to seek God's aid, and who never returned. Thereabouts it chanced that a man came into this community from the outer world. And this is the story of that man.

We take many things for granted in this world. We accept many preconceived notions about an amazingly large number of things, which, like as not, prove to be amazingly wrong. If any story ever proved this point, "The Country of the Blind" certainly is that one. The author exploits the well-known saying, "In the country of the blind, the one-eyed man is king." Indeed that statement is most easy to believe and all logic should point that way. In reading this interesting story, you will soon find out how far wrong even seemingly good logic can be.

He was a mountaineer from the country near Quinto, a man who had been down to the sea and had seen the world, a reader of books in an original way, an acute and enterprising man, and he was taken on by a party of Englishmen who had come out to Ecuador to climb mountains, to replace one of their three Swiss guides who had fallen ill. He climbed here and he climbed there, and then came the attempt on Parascotopetl, the Matterhorn of the Andes, in which he was lost to the outer world. The story of the accident has been written a dozen times. Pointer's narrative is the best. He tells how the little party worked their difficult and almost vertical way up to the very foot of the last and greatest precipice, and how they built a night shelter amidst the snow upon a little shelf of rock, and, with a touch of real dramatic power, how presently they found Nunez had gone from them. They shouted, and there was no reply; shouted and whistled, and for the rest of that night they slept no more.

As the morning broke they saw the traces of his fall. It seems impossible he could have uttered a sound. He had slipped eastward toward the unknown side of the mountain; far below he had struck a steep slop of snow, and ploughed his way down it in the midst of a snow avalanche. His track went straight to the edge of a frightful precipice, and beyond that everything was hidden. Far, far below, and hazy with distance, they could see trees rising out of a narrow, shut-in valley—the lost Country of the Blind. But they did not know it was the lost Country of the Blind, nor distinguish it in any way from any other narrow streak of upland valley. Unnerved by this disaster, they abandoned their attempt in the afternoon, and Pointer was called away to the war before he could make another attack. To this day Parascotopetl lifts an unconquered crest, and Pointer's shelter crumbles unvisited amidst the snows.

AND the man who fell survived.

At the end of the slope he fell a thousand feet, and came down in the midst of a cloud of snow upon a snow slope even steeper than the one above. Down this he was whirled, stunned and insensible, but without a bone broken in his body; and then at last came to gentler slopes, and at last rolled out and lay still, buried amidst a softening heap of the white masses that had accompanied and saved him. He came to himself with a dim fancy that he was ill in bed; then realised his position with a mountaineer's intelligence, and worked himself loose and, after a rest or so, out until he saw the stars. He rested flat upon his chest for a space, wondering where he was and what had happened to him. He explored his limbs, and discovered that several of his buttons were gone and his coat turned over his head. His knife had gone from his pocket and his hat was lost, though he had tied it under his chin. He recalled that he had been looking for loose stones to raise his piece of the shelter wall. His ice-axe had disappeared.

He decided he must have fallen, and looked up to see, exaggerated by the ghastly light of the rising moon, the tremendous flight he had taken. For a while he lay, gazing blankly at that vast pale cliff towering above, rising moment by moment out of a subsiding tide of darkness. Its phantasmal, mysterious beauty held him for a space, and then he was seized with a paroxysm of sobbing laughter. . . .

After a great interval of time he became aware that he was near the lower edge of the snow. Below, down what was now a moonlit and practicable slope, he saw the dark and broken appearance of rock-strewn turf. He struggled to his feet, aching in every joint and limb, got down painfully from the heaped loose snow about him, went downward until he was on the turf, and there dropped rather than lay beside a boulder, drank deep from the flask in his inner pocket, and instantly fell asleep. . . .

He was awakened by the singing of birds in the trees far below.

He sat up and perceived he was on a little alp at the foot of a vast precipice, that was grooved by the gully down which he and his snow had come. Over against him another wall of rock reared itself against the sky. The gorge between these precipices ran east and west and was full of the morning sunlight, which lit to the westward the mass of fallen mountain that closed the descending gorge. Below him it seemed there was a precipice equally steep, but behind the snow in the gully he found a sort of chimney-cleft dripping with snow-water down which a desperate man might venture. He found it easier than it seemed, and came at last to another desolate alp, and then after a rock climb of no particular difficulty, to a steep slope of trees. He took his bearings and turned his face up the gorge, for he saw it opened out above upon green meadows, among which he now glimpsed quite distinctly a cluster of stone huts of unfamiliar fashion. At times his progress was like clambering along the face of a wall, and after a time the rising sun ceased to strike along the gorge, the voices of the singing birds died away, and the air grew cold and dark about him. But the distant valley with its houses was all the brighter for that. He came presently to talus, and among the rocks he noted—for he was an observant man—an unfamiliar fern that seemed to clutch out of the crevices with intense green hands. He picked a frond or so and gnawed its stalk and found it helpful.

About midday he came at last out of the throat of the gorge into the plain and the sunlight. He was stiff and weary; he sat down in the shadow of a rock, filled up his flask with water from a spring and drank it down, and remained for a time resting before he went on to the houses.

They were very strange to his eyes, and indeed the whole aspect of that valley became, as he regarded it, queerer and more unfamiliar. The greater part of its surface was lush green meadow, starred with many beautiful flowers, irrigated with extraordinary care, and bearing evidence of systematic cropping piece by piece. High up and ringing the valley about was a wall, and what appeared to be a circumferential water-channel, from which the little trickles of water that fed the meadow plants came, and on the higher slopes above this flocks of llamas cropped the scanty herbage. Sheds, apparently shelters or feeding-places for the llamas, stood against the boundary wall here and there. The irrigation streams ran together into a main channel down the centre of the valley, and this was enclosed on either side by a wall breast high. This gave a singularly urban quality to this secluded place, a quality that was greatly enhanced by the fact that a number of paths paved with black and white stones, and each with a curious little kerb at the side, ran hither and thither in an orderly manner. The houses of the central village were quite unlike the casual and higgledy-piggledy agglomeration of the

mountain villages he knew; they stood in a continuous row on either side of a central street of astonishing cleanness; here and there their parti-coloured facade was pierced by a door, and not a solitary window broke their even frontage. They were parti-coloured with extraordinary irregularity, smeared with a sort of plaster that was sometimes gray, sometimes drab, sometimes slate-coloured or dark brown; and it was the sight of this wild plastering first brought the word "blind" into the thoughts of the explorer. "The good man who did that," he thought, "must have been as blind as a bat."

HE descended a steep place, and so came to the wall and channel that ran about the valley, near where the latter spouted out its surplus contents into the deeps of the gorge in a thin and wavering thread of cascade. He could now see a number of men and women resting on piled heaps of grass, as if taking a siesta, in the remoter part of the meadow, and nearer the village a number of recumbent children, and then nearer at hand three men carrying pails on yokes along a little path that ran from the encircling wall towards the houses. These latter were clad in garments of llama cloth and boots and belts of leather, and they wore caps of cloth with back and ear flaps. They followed one another in single file, walking slowly and yawning as they walked, like men who have been up all night. There was something so reassuringly prosperous and respectable in their bearing that after a moment's hesitation Nunez stood forward as conspicuously as possible upon his rock, and gave vent to a mighty shout that echoed round the valley.

The three men stopped, and moved their heads as though they were looking about them. They turned their faces this way and that, and Nunez gesticulated with freedom. But they did not appear to see him for all his gestures, and after a time, directing themselves towards the mountains far away to the right, they shouted as if in answer. Nunez bawled again, and then once more, and as he gestured ineffectually the word "blind" came up to the top of his thoughts. "The fools must be blind," he said.

When at last, after much shouting and wrath, Nunez crossed the stream by a little bridge, came through a gate in the wall, and approached them, he was sure that they were blind. He was sure that this was the Country of the Blind of which the legends told. Conviction had sprung upon him, and a sense of great and rather enviable adventure. The three stood side by side, not looking at him, but with their ears directed towards him, judging him by his unfamiliar steps. They stood close together like men a little afraid, and he could see their eyelids closed and sunken, as though the very balls beneath had shrunk away. There was an expression near awe on their faces.

"A man," one said, in hardly recognisable Spanish —"a man it is—a man or a spirit—coming down from the rocks."

But Nunez advanced with the confident steps of a youth who enters upon life. All the old stories of the lost valley and the Country of the Blind had come back to his mind, and through his thoughts ran this old proverb, as if it were a refrain—

"In the Country of the Blind the One-eyed Man is King."

"In the Country of the Blind the One-eyed Man is King."

And very civilly he gave them greeting. He talked to them and used his eyes.

"Where does he come from, brother Pedro?" asked one.

"Down out of the rocks."

"Over the mountains I come," said Nunez, "out of the country beyond there—where men can see. From near Bogota, where there are a hundred thousands of people, and where the city passes out of sight."

"Sight?" muttered Pedro. "Sight?"

"He comes," said the second blind man, "out of the rocks."

The cloth of their coats Nunez saw was curiously fashioned, each with a different sort of stitching.

They startled him by a simultaneous movement towards him, each with a hand outstretched. He stepped back from the advance of these spread fingers.

"Come hither," said the third blind man, following his motion and clutching him neatly.

And they held Nunez and felt him over, saying no word further until they had done so.

"Carefully," he cried, with a finger in his eye, and found they thought that organ, with its fluttering lids, a queer thing in him. They went over it again.

"A strange creature, Correa," said the one called Pedro. "Feel the coarseness of his hair. Like a llama's hair."

"Rough he is as the rocks that begot him," said Correa, investigating Nunez's unshaven chin with a soft and slightly moist hand. "Perhaps he will grow finer." Nunez struggled a little under their examination, but they gripped him firmly.

"Carefully," he said again.

"He speaks," said the third man. "Certainly he is a man."

"Ugh!" said Pedro, at the roughness of his coat.

"And you have come into the world?" asked Pedro.

"*Out* of the world. Over mountains and glaciers; right over above there, half way to the sun. Out of the great big world that goes down, twelve days' journey to the sea."

They scarcely seemed to heed him. "Our fathers have told us men may be made by the forces of Nature," said Correa. "It is the warmth of things and moisture, and rottenness—rottenness."

"Let us lead him to the elders," said Pedro.

"Shout first," said Correa, "lest the children be afraid. This is a marvellous occasion."

So they shouted, and Pedro went first and took Nunez by the hand to lead him to the houses.

He drew his hand away. "I can see," he said.

"See?" said Correa.

"Yes, see," said Nunez, turning towards him, and stumbled against Pedro's pail.

"His senses are still imperfect," said the third blind man. "He stumbles, and talks unmeaning words. Lead him by the hand."

"As you will," said Nunez, and was led along, laughing.

It seemed they knew nothing of sight.

Well, all in good time he would teach them.

He heard people shouting, and saw a number of figures gathering together in the middle roadway of the village.

He found it taxed his nerve and patience more than he had anticipated, that first encounter with the population of the Country of the Blind. The place seemed larger as he drew near to it, and the smeared plasterings queerer, and a crowd of children and men and women (the women and girls, he was pleased to note, had some of them quite sweet faces, for all that their eyes were shut and sunken) came about him, holding on to him, touching him with soft, sensitive hands, smelling at him, and listening at every word he spoke. Some of the maidens and children, however, kept aloof as if afraid, and indeed his voice seemed coarse, and rude beside their softer notes. They mobbed him. His three guides kept close to him with an effect of proprietorship, and said again and again, "A wild man out of the rocks."

"Bogota," he said. "Bogota. Over the mountain crests."

"A wild man—using wild words," said Pedro. "Did you hear that—*Bogota?* His mind is hardly formed yet. He has only the beginnings of speech."

A little boy nipped his hand. "Bogota!" he said mockingly.

"Ay! A city to your village. I come from the great world—where men have eyes and see."

"His name's Bogota," they said.

"He stumbled," said Correa, "stumbled twice as we came hither."

"Bring him to the elders."

AND they thrust him suddenly through a doorway into a room as black as pitch, save at the end there faintly glowed a fire. The crowd closed in behind him and shut out all but the faintest glimmer of day, and before he could arrest himself he had fallen headlong over the fe.. of a seated man. His arm, outflung, struck the face of some one else as he went down; he felt the soft impact of features and heard a cry of anger, and for a moment he struggled against a number of hands that clutched him. It was a one-sided fight. An inkling of the situation came to him, and he lay quiet.

"I fell down," he said; "I couldn't see in this pitchy darkness."

There was a pause as if the unseen persons about him tried to understand his words. Then the voice of Correa said: "He is but newly formed. He stumbles as he walks and mingles words that mean nothing, with his speech."

Others also said things about him that he heard or understood imperfectly.

"May I sit up?" he asked, in a pause. "I will not struggle against you again."

They consulted and let him rise.

The voice of an older man began to question him, and Nunez found himself trying to explain the great world out of which he had fallen, and the sky and mountains and sight and such-like marvels, to these elders who sat in darkness in the Country of the Blind. And they would believe and understand nothing whatever he told them, a thing quite outside his expectation. They would not even understand many of his words. For fourteen generations these people had been blind and cut off from all the seeing world; the names for all the things of sight had faded and changed; the story of the outer world was faded and changed to a child's story; and they had ceased to concern themselves with anything beyond the rocky slopes above their circling wall. Blind men of genius had arisen among them and questioned the shreds of belief and tradition they had brought with them from their seeing days, and had dismissed all these things as idle fancies, and replaced them with new and saner explanations. Much of their imagination had shrivelled with their eyes, and they had made for themselves new imaginations with their ever more sensitive ears and finger-tips. Slowly Nunez realised this; that his expectation of wonder and reverence at his origin and his gifts was not to be borne out; and after his poor attempt to explain sight to them, had been set aside as the confused version of a new-made being, describing the marvels of his incoherent sensations, he subsided, a little dashed, into listening to their instruction. And the eldest of the blind men explained to him life and philosophy and religion, how that the world (meaning their valley) had been first an empty hollow in the rocks, and then had come, first, inanimate things without the gift of touch, and llamas and a few other creatures that had little sense, and then men, and at last angels, whom one could hear singing and making fluttering sounds, but whom no one could touch at all, which puzzled Nunez greatly until he thought of the birds.

He went on to tell Nunez how this time had been divided into the warm and the cold, which are the blind equivalents of day and night, and how it was good to sleep in the warm and work during the cold, so that now, but for his advent, the whole town of the blind would have been asleep. He said Nunez must have been specially created to learn and serve the wisdom they had acquired, and that for all his mental incoherency and stumbling behaviour he must have courage and do his best to learn, and at that all the people in the doorway murmured encouragingly. He said the night—for the blind call their day night—was now far gone, and it behooved every one to go back to sleep. He asked Nunez if he knew how to sleep, and Nunez said he did, but that before sleep he wanted food.

They brought him food—llama's milk in a bowl, and rough salted bread—and led him into a lonely place to eat out of their hearing, and afterwards to slumber until the chill of the mountain evening roused them to begin their day again. But Nunez slumbered not at all.

Instead, he sat up in the place where they had left him, resting his limbs and turning the unanticipated circumstances of his arrival over and over in his mind.

Every now and then he laughed, sometimes with amusement, and sometimes with indignation.

"Unformed mind!" he said. "Got no senses yet! They little know they've been insulting their heaven-sent king and master. I see I must bring them to reason. Let me think—let me think."

He was still thinking when the sun set.

Nunez had an eye for all beautiful things, and it seemed to him that the glow upon the snowfields and glaciers that rose about the valley on every side was the most beautiful thing he had ever seen. His eyes went from that inaccessible glory to the village and irrigated fields, fast sinking into the twilight, and suddenly a wave of emotion took him, and he thanked God from the bottom of his heart that the power of sight had been given him.

He heard a voice calling to him from out of the village "Ya ho there, Bogota! Come hither!"

At that he stood up smiling. He would show these

people once and for all what sight would do for a man. They would seek him, but not find him.

"You move not, Bogota," said the voice.

He laughed noiselessly, and made two stealthy steps aside from the path.

"Trample not on the grass, Bogota; that is not allowed."

Nunez had scarcely heard the sound he made himself. He stopped amazed.

The owner of the voice came running up the piebald path towards him.

He stepped back into the pathway. "Here I am," he said.

"Why did you not come when I called you?" said the blind man. "Must you be led like a child? Cannot you hear the path as you walk?"

Nunez laughed. "I can see it," he said.

"There is no such word as *see*," said the blind man, after a pause. "Cease this folly, and follow the sound of my feet."

Nunez followed, a little annoyed.

"My time will come," he said.

"You'll learn," the blind man answered. "There is much to learn in the world."

"Has no one told you, 'In the Country of the Blind the One-eyed Man is King?'"

"What is blind?" asked the blind man carelessly over his shoulder.

FOUR days passed, and the fifth found the King of the Blind still incognito, as a clumsy and useless stranger among his subjects.

It was, he found, much more difficult to proclaim himself than he had supposed, and in the meantime, while he meditated his *coup d'état*, he did what he was told and learnt the manners and customs of the Country of the Blind. He found working and going about at night a particularly irksome thing, and he decided that that should be the first thing he would change.

They led a simple, laborious life, these people, with all the elements of virtue and happiness, as these things can be understood by men. They toiled, but not oppressively; they had food and clothing sufficient for their needs; they had days and seasons of rest; they made much of music and singing, and there was love among them, and little children.

It was marvellous with what confidence and precision they went about their ordered world. Everything, you see, had been made to fit their needs; each of the radiating paths of the valley area had a constant angle to the others, and was distinguished by a special notch upon its kerbing; all obstacles and irregularities of path or meadow had long since been cleared away; all their methods and procedure arose naturally from their special needs. Their senses had become marvellously acute; they could hear and judge the slightest gesture of a man a dozen paces away—could hear the very beating of his heart. Intonation had long replaced expression with them, and touches gesture, and their work with hoe and spade and fork was as free and confident as garden work can be. Their sense of smell was extraordinarily fine; they could distinguish individual differences as readily as a dog can, and they went about the tending of the llamas, who lived among the rocks above and came to the wall for food and shelter, with ease and confidence. It was only when at last Nunez sought to assert himself that he found how easy and confident their movements could be.

He rebelled only after he had tried persuasion.

He tried at first on several occasions to tell them of sight. "Look you here, you people," he said. "There are things you do not understand in me."

Once or twice one or two of them attended to him; they sat with faces downcast and ears turned intelligently towards him, and he did his best to tell them what it was to see. Among his hearers was a girl, with eyelids less red and sunken than the others, so that one could almost fancy she was hiding eyes, whom especially he hoped to persuade. He spoke of the beauties of sight, of watching the mountains, of the sky and the sunrise, and they heard him with amused incredulity that presently became condemnatory. They told him there were indeed no mountains at all, but that the end of the rocks where the llamas grazed was indeed the end of the world; thence sprang a cavernous roof of the universe, from which the dew and the avalanches fell; and when he maintained stoutly the world had neither end nor roof such as they supposed, they said his thoughts were wicked. So far as he could describe sky and clouds and stars to them it seemed to them a hideous void, a terrible blankness in the place of the smooth roof to things in which they believed—it was an article of faith with them that the cavern roof was exquisitely smooth to the touch. He saw that in some manner he shocked them, and gave up that aspect of the matter altogether, and tried to show them the practical value of sight. One morning he saw Pedro in the path called Seventeen and coming towards the central houses, but still too far off for hearing or scent, and he told them as much. "In a little while," he prophesied, "Pedro will be here." An old man remarked that Pedro had no business on Path Seventeen, and then, as if in confirmation, that individual as he drew near turned and went transversely into path Ten, and so back with nimble paces towards the outer wall. They mocked Nunez when Pedro did not arrive, and afterwards, when he asked Pedro questions to clear his character, Pedro denied and outfaced him, and was afterwards hostile to him.

Then he induced them to let him go a long way up the sloping meadows towards the wall with one complacent individual, and to him he promised to describe all that happened among the houses. He noted certain goings and comings, but the things that really seemed to signify to these people happened inside of or behind the windowless houses—the only things they took note of to test him by—and of these he could see or tell nothing; and it was after the failure of this attempt, and the ridicule they could not repress, that he resorted to force. He thought of seizing a spade and suddenly smiting one or two of them to earth, and so in fair combat showing the advantage of eyes. He went so far with that resolution as to seize his spade, and then he discovered a new thing about himself, and that was that it was impossible for him to hit a blind man in cold blood.

He hesitated, and found them all aware that he had snatched up the spade. They stood alert, with their heads on one side, and bent ears towards him for what he would do next.

"Put that spade down," said one, and he felt a sort of helpless horror. He came near obedience.

Then he thrust one backwards against a house wall, and fled past him and out of the village.

HE went athwart one of their meadows, leaving a track of trampled grass behind his feet, and presently sat down by the side of one of their ways. He felt something of the buoyancy that comes to all men in the beginning of a fight, but more perplexity. He began to realise that you cannot even fight happily with creatures who stand upon a different mental basis to yourself. Far away he saw a number of men carrying spades and sticks come out of the street of houses, and advance in a spreading line along the several paths towards him. They advanced slowly, speaking frequently to one another, and ever and again the whole cordon would halt and sniff the air and listen.

The first time they did this Nunez laughed. But afterwards he did not laugh.

One struck his trail in the meadow grass, and came stooping and feeling his way along it.

For five minutes he watched the slow extension of the cordon, and then his vague disposition to do something forthwith became frantic. He stood up, went a space or so towards the circumferential wall, turned, and went back a little way. There they all stood in a crescent, still and listening.

He also stood still, gripping his spade very tightly in both hands. Should he charge them?

The pulse in his ears ran into the rhythm of "In the Country of the Blind the One-eyed Man is King!"

Should he charge them?

He looked back at the high and unclimbable wall behind—unclimbable because of its smooth plastering, but withal pierced with many little doors, and at the approaching line of seekers. Behind these others were now coming out of the street of houses.

Should he charge then?

"Bogota!" called one. "Bogota! where are you?"

He gripped his spade still tighter, and advanced down the meadows towards the place of habitations, and directly he moved they converged upon him. "I'll hit them if they touch me," he swore; "by Heaven, I will. I'll hit." He called aloud, "Look here, I'm going to do what I like in this valley. Do you hear? I'm going to do what I like and go where I like!"

They were moving in upon him quickly, groping, yet moving rapidly. It was like playing blind man's buff, with every one blindfolded except one. "Get hold of him!" cried one. He found himself in the arc of a loose curve of pursuers. He felt suddenly he must be active and resolute.

"You don't understand," he cried in a voice that was meant to be great and resolute, and which broke. "You are blind, and I can see. Leave me alone!"

"Bogota! Put down that spade, and come off the grass!"

The last order, grotesque in its urban familiarity, produced a gust of anger.

"I'll hurt you," he said, sobbing with emotion. "By Heaven, I'll hurt you. Leave me alone!"

He began to run, not knowing clearly where to run. He ran from the nearest blind man, because it was a horror to hit him. He stopped, and then made a dash to escape from their closing ranks. He made for where a gap was wide, and the men on either side, with a quick perception of the approach of his paces, rushed in on one another. He sprang forward, and then saw he must be caught, and *swish!* the spade had struck. He felt the soft thud of hand and arm, and the man was down with a yell of pain, and he was through.

Through! And then he was close to the street of houses again, and blind men, whirling spades and stakes, were running with a sort of reasoned swiftness hither and thither.

He heard steps behind him just in time, and found a tall man rushing forward and swiping at the sound of him. He lost his nerve, hurled his spade a yard wide at his antagonist, and whirled about and fled, fairly yelling as he dodged another.

He was panic-stricken. He ran furiously to and fro, dodging when there was no need to dodge, and in his anxiety to see on every side of him at once, stumbling. For a moment he was down and they heard his fall. Far away in the circumferential wall a little doorway looked like heaven, and he set off in a wild rush for it. He did not even look around at his pursuers until it was gained, and he had stumbled across the bridge, clambered a little way among the rocks, to the surprise and dismay of a young llama, who went leaping out of sight, and lay down sobbing for breath.

And so his *coup d'état* came to an end.

He stayed outside the wall of the valley of the Blind for two nights and days without food or shelter, and meditated upon the unexpected. During these meditations he repeated very frequently and always with a profounder note of derision the exploded proverb: "In the Country of the Blind the One-eyed Man is King." He thought chiefly of ways of fighting and conquering these people, and it grew clear that for him no practicable way was possible. He had no weapons, and now it would be hard to get one.

THE canker of civilisation had got to him even in Bogota, and he could not find it in himself to go down and assassinate a blind man. Of course, if he did that, he might then dictate terms on the threat of assassinating them all. But—sooner or later he must sleep! . . .

He tried also to find food among the pine trees, to be comfortable under pine boughs while the frost fell at night, and—with less confidence—to catch a llama by artifice in order to try to kill it—perhaps by hammering it with a stone—and so finally, perhaps, to eat some of it. But the llamas had a doubt of him and regarded him with distrustful brown eyes, and spat when he drew near. Fear came on him the second day and fits of shivering. Finally he crawled down to the wall of the Country of the Blind and tried to make terms. He crawled along by the stream, shouting, until two blind men came out to the gate and talked to him.

"I was mad," he said. "But I was only newly made."

They said that was better.

He told them he was wiser now, and repented of all he had done.

Then he wept without intention, for he was very weak and ill now, and they took that as a favourable sign.

They asked him if he still thought he could "*see*."

"No," he said "That was folly. The world means nothing—less than nothing!"

They asked him what was overhead.

"About ten times ten the height of a man there is a roof above the world—of rock—and very, very

smooth." . . . He burst again into hysterical tears. "Before you ask me any more, give me some food or I shall die."

He expected dire punishments, but these blind people were capable of toleration. They regarded his rebellion as but one more proof of his general idiocy and inferiority; and after they had whipped him they appointed him to do the simplest and heaviest work they had for any one to do, and he, seeing no other way of living, did submissively what he was told.

He was ill for some days, and they nursed him kindly. That refined his submission. But they insisted on his lying in the dark, and that was a great misery. And blind philosophers came and talked to him of the wicked levity of his mind, and reproved him so impressively for his doubts about the lid of rock that covered their cosmic casserole that he almost doubted whether indeed he was not the victim of hallucination in not seeing it overhead.

So Nunez became a citizen of the Country of the Blind, and these people ceased to be a generalised people and became individualities and familiar to him, while the world beyond the mountains became more and more remote and unreal. There was Yacob, his master, a kindly man when not annoyed; there was Pedro, Yacob's nephew; and there was Medina-saroté, who was the youngest daughter of Yacob. She was little esteemed in the world of the blind, because she had a clear-cut face, and lacked that satisfying, glossy smoothness that is the blind man's ideal of feminine beauty; but Nunez thought her beautiful at first, and presently the most beautiful thing in the whole creation. Her closed eyelids were not sunken and red after the common way of the valley, but lay as though they might open again at any moment; and she had long eyelashes, which were considered a grave disfigurement. And her voice was strong, and did not satisfy the acute hearing of the valley swains. So that she had no lover.

There came a time when Nunez thought that, could he win her, he would be resigned to live in the valley for all the rest of his days.

He watched her; he sought opportunities of doing her little services, and presently he found that she observed him. Once at a rest-day gathering they sat side by side in the dim starlight, and the music was sweet. His hand came upon hers and he dared to clasp it. Then very tenderly she returned his pressure. And one day, as they were at their meal in the darkness, he felt her hand very softly seeking him, and as it chanced the fire leapt then and he saw the tenderness of her face.

He sought to speak to her.

He went to her one day when she was sitting in the summer moonlight spinning. The light made her a thing of silver and mystery. He sat down at her feet and told her he loved her, and told her how beautiful she seemed to him. He had a lover's voice, he spoke with a tender reverence that came near to awe, and she had never before been touched by adoration. She made him no definite answer, but it was clear his words pleased her.

After that he talked to her whenever he could take an opportunity. The valley became the world for him, and the world beyond the mountains where men lived in sunlight seemed no more than a fairy tale he would some day pour into her ears. Very tentatively and timidly he spoke to her of sight.

Sight seemed to her the most poetical of fancies, and she listened to his description of the stars and the mountains and her own sweet white-lit beauty as though it was a guilty indulgence. She did not believe, she could only half understand, but she was mysteriously delighted, and it seemed to him that she completely understood.

His love lost its awe and took courage. Presently he was for demanding her of Yacob and the elders in marriage, but she became fearful and delayed. And it was one of her elder sisters who first told Yacob that Medina-saroté and Nunez were in love.

There was from the first very great opposition to the marriage of Nunez and Medina-saroté; not so much because they valued her as because they held him as a being apart, an idiot, incompetent thing below the permissible level of a man. Her sisters opposed it bitterly as bringing discredit on them all; and old Yacob, though he had formed a sort of liking for his clumsy, obedient serf, shook his head and said the thing could not be. The young men were all angry at the idea of corrupting the race, and one went so far as to revile and strike Nunez. He struck back. Then for the first time he found an advantage in seeing, even by twilight, and after that fight was over no one was disposed to raise a hand against him. But they still found his marriage impossible.

Old Yacob had a tenderness for his last little daughter, and was grieved to have her weep upon his shoulder.

"You see, my dear, he's an idiot. He has delusions; he can't do anything right."

"I know," wept Medina-saroté. "But he's better than he was. He's getting better. And he's strong, dear father, and kind—stronger and kinder than any other man in the world. And he loves me—and father, I love him."

OLD Yacob was greatly distressed to find her inconsolable, and, besides—what made it more distressing—he liked Nunez for many things. So he went and sat in the windowless council-chamber with the other elders and watched the trend of the talk, and said, at the proper time, "He's better than he was. Very likely, some day, we shall find him as sane as ourselves."

Then afterwards one of the elders, who thought deeply, had an idea. He was the great doctor among these people, their medicine-man, and he had a very philosophical and inventive mind, and the idea of curing Nunez of his peculiarities appealed to him. One day when Yacob was present he returned to the topic of Nunez.

"I have examined Bogota," he said, "and the case is clearer to me. I think very probably he might be cured."

"That is what I have always hoped," said old Yacob.

"His brain is affected," said the blind doctor.

The elders murmured assent.

"Now, *what* affects it?"

"Ah!" said old Yacob.

"*This*," said the doctor, answering his own question. "Those queer things that are called the eyes, and which exist to make an agreeable soft depression in the face, are diseased, in the case of Bogota, in such a way as to affect his brain. They are greatly distended, he has eyelashes, and his eyelids move, and consequently his brain is in a state of constant irritation and distraction."

"Yes?" said old Yacob. "Yes?"

"And I think I may say with reasonable certainty that, in order to cure him completely, all that we need do is a simple and easy surgical operation—namely, to remove these irritant bodies."

"And then he will be sane?"

"Then he will be perfectly sane, and a quite admirable citizen."

"Thank Heaven for science!" said old Yacob, and went forth at once to tell Nunez of his happy hopes.

But Nunez's manner of receiving the good news struck him as being cold and disappointing.

"One might think," he said, "from the tone you take, that you did not care for my daughter."

It was Medina-saroté who persuaded Nunez to face the blind surgeons.

"*You* do not want me," he said, "to lose my gift of sight?"

She shook her head.

"My world is sight."

Her head drooped lower.

"There are the beautiful things, the beautiful little things—the flowers, the lichens among the rocks, the lightness and softness on a piece of fur, the far sky with its drifting down of clouds, the sunsets and the stars. And there is *you*. For you alone it is good to have sight, to see your sweet, serene face, your kindly lips, your dear, beautiful hands folded together. . . . It is these eyes of mine you won, these eyes that hold me to you, that these idiots seek. Instead, I must touch you, hear you, and never see you again. I must come under that roof of rock and stone and darkness, that horrible roof under which your imagination stoops. . . . No; you would not have me do that?"

A disagreeable doubt had arisen in him. He stopped, and left the thing a question.

"I wish," she said, "sometimes——" She paused.

"Yes," said he, a little apprehensively.

"I wish sometimes—you would not talk like that."

"Like what?"

"I know it's pretty—it's your imagination. I love it, but *now*——"

He felt cold. "*Now?*" he said faintly.

She sat quite still.

"You mean—you think—I should be better, better perhaps——"

He was realising things very swiftly. He felt anger, indeed, anger at the dull course of fate, but also sympathy for her lack of understanding— a sympathy near akin to pity.

"*Dear,*" he said, and he could see by her whiteness how intensely her spirit pressed against the things she could not say. He put his arms about her, he kissed her ear, and they sat for a time in silence.

"If I were to consent to this?" he said at last, in a voice that was very gentle.

She flung her arms about him, weeping wildly. "Oh, if you would," she sobbed, "if only you would!"

FOR a week before the operation that was to raise him from his servitude and inferiority to the level of a blind citizen, Nunez knew nothing of sleep, and all through the warm sunlit hours, while the others slumbered happily, he sat brooding or wandered aimlessly, trying to bring his mind to bear on his dilemma. He had given his answer, he had given his consent, and still he was not sure. And at last worktime was over, the sun rose in splendour over the golden crests, and his last day of vision began for him. He had a few minutes with Medina-saroté before she went apart to sleep.

"To-morrow," he said, "I shall see no more."

"Dear heart!" she answered, and pressed his hands with all her strength.

"They will hurt you but little," she said; "and you are going through this pain—you are going through it, dear lover, for *me*. . . . Dear, if a woman's heart and life can do it, I will repay you. My dearest one, my dearest with the tender voice, I will repay."

He was drenched in pity for himself and her.

He held her in his arms, and pressed his lips to hers, and looked on her sweet face for the last time. "Good-bye!" he whispered at that dear sight, "good-bye!"

And then in silence he turned away from her.

She could hear his slow retreating footsteps, and something in the rhythm of them threw her into a passion of weeping.

He had fully meant to go to a lonely place where the meadows were beautiful with white narcissus, and there remain until the hour of his sacrifice should come, but as he went he lifted up his eyes and saw the morning, the morning like an angel in golden armour, marching down the steeps. . . .

It seemed to him that before this splendour he, and this blind world in the valley, and his love, and all, were no more than a pit of sin.

He did not turn aside as he had meant to do, but went on, and passed through the wall of the circumference and out upon the rocks, and his eyes were always upon the sunlit ice and snow.

He saw their infinite beauty, and his imagination soared over them to the things beyond he was now to resign for ever.

He thought of that great free world he was parted from, the world that was his own, and he had a vision of those further slopes, distance beyond distance, with Bogota, a place of multitudinous stirring beauty, a glory by day, a luminous mystery by night, a place of palaces and fountains and statues and white houses, lying beautifully in the middle distance. He thought how for a day or so one might come down through passes, drawing ever nearer and nearer to its busy streets, and ways. He thought of the river journey, day by day, from great Bogota to the still vaster world beyond, through towns and villages, forest and desert places, the rushing river day by day, until its banks receded and the big steamers came splashing by, and one had reached the sea—the limitless sea, with its thousand islands, its thousands of islands, and its ships seen dimly far away in their incessant journeyings round and about that greater world. And there, unpent by mountains, one saw the sky—the sky, not such a disc as one saw it here, but an arch of immeasurable blue, a deep of deeps in which the circling stars were floating. . . .

His eyes scrutinised the great curtain of the mountains with a keener inquiry.

For example, if one went so, up that gully and to that chimney there, then one might come out high among those stunted pines that ran round in a sort of shelf and rose still higher and higher as it passed above the gorge And then? That talus might be managed. Thence perhaps a climb might be found to take him up to the precipice that came below the snow; and if that chimney failed, then another farther to the east might serve his purpose better. And

then? Then one would be out upon the amber-lit snow there, and half-way up to the crest of those beautiful desolations.

He glanced back at the village, then turned right round and regarded it steadfastly.

He thought of Medina-saroté, and she had become small and remote.

He turned again towards the mountain wall, down which the day had come to him.

Then very circumspectly he began to climb.

When sunset came he was no longer climbing, but he was far and high. He had been higher, but he was still very high. His clothes were torn, his limbs were blood-stained, he was bruised in many places, but he lay as if he were at his ease, and there was a smile on his face.

From where he rested the valley seemed as if it were in a pit and nearly a mile below. Already it was dim with haze and shadow, though the mountain summits around him were things of light and fire. The mountain summits around him were things of light and fire, and the little details of the rocks near at hand were drenched with subtle beauty—a vein of green mineral piercing the gray, the flash of crystal faces here and there, a minute, minutely-beautiful orange lichen close beside his face. There were deep mysterious shadows in the gorge, blue deepening into purple, and purple into a luminous darkness, and overhead was the illimitable vastness of the sky. But he heeded these things no longer, but lay quite inactive there, smiling as if he were satisfied merely to have escaped from the valley of the Blind in which he had thought to be King.

The glow of the sunset passed, and the night came, and still he lay peacefully contented under the cold clear stars.

THE END

The Metal Emperor

By A. MERRITT

Author of "The Moon Pool," "The Face in the Abyss," etc.

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What Do You Know?

READERS of AMAZING STORIES have frequently commented upon the fact that there is more actual knowledge to be gained through reading its pages than from many a textbook. Moreover, most of the stories are written in a popular vein, making it possible for any one to grasp important facts.

The questions which we give below are all answered on the pages as listed at the end of the questions. Please see if you can answer the questions first without looking for the answer, and see how well you check up on your general knowledge.

1. What is the miller's wind? (See page 831).
2. What wind pressure was recorded when the Tay bridge blew down? (See page 833).
3. At what velocity would a current of air have to rise to support a man standing erect? (See page 833).
4. What weight can the stag beetle lift compared to its own weight? (See page 833).
5. How many beats of the wing per minute do the albatross, the pelican, the bee, and the horse-fly give respectively? (See page 833).
6. What American balloonists perished in Lake Michigan? (See page 834).
7. What is the average fall of the thermometer for each 70 meters elevation above the surface of the earth? (See page 844).
8. What is the name of the famous mountain called the Matterhorn of the Andes? (See page 852).
9. What is the famous proverb about the One-eyed man? (See page 853).
10. What is emotion? How is it produced? What glands are involved? (See page 880).
11. When do sound vibrations cease to affect our senses? When do ether vibrations begin to affect our senses? (See page 883).
12. What are the three ingredients of gunpowder? (See page 898).

HICKS' INVENTIONS WITH A KICK

By Henry Hugh Simmons

THE ELECTRO-HYDRAULIC BANK PROTECTOR

It was in vain that Croffitt exerted his utmost strength to escape the viscous embrace . . and it was not long before he was smeared with glue from head to foot . . The two were executing a strange two-step on the mosaic. Their shoes got stuck on the floor by the heavy, sticky mass that was running off them, and this made their efforts increasingly more frantic.

THE maid brought in a card. I took it, read it, and threw it in the waste basket.

"Tell him I am on my vacation," I said in a voice loud enough to be heard three rooms off. And just at that moment Hicks entered.

I tell you I sat in my chair like petrified. Since that episode of the Automatic Apartment, I had not seen Hicks—at close range, at least. For nine months I had been daily kicking myself for having allowed him to talk me into fixing up another demonstration for him—and that after the first one had resulted in disaster. I had been dodging those people on the street myself ever since, and in my walks about town I was in a continuous sweat lest I meet one of them face to face. Guess my feelings, then, at that man's colossal nerve when he appeared uninvited just as I was throwing his card into the waste basket.

As I sat there speechless, Hicks advanced and proffered me a small flat package done up in fancy paper and tied with red string. Mechanically, I took that package and undid the thread. Methodically, slowly I unwrapped it. Hicks, in the meantime, had sat down in my easiest chair and gravely lit a cigarette. Inside the package there was a fancy box. I opened it. A golden cigarette case came into view. In the middle of the cover, beautifully engraved, my eye read my name "Fred C. O'Keefe." With fastidious care, I lifted the cover. Twenty cigarettes of the well-known super-expensive brand "Abdullah" were neatly arranged in two rows.

The click of the box, as I snapped it shut, brought me back to my senses.

"Hicks," I said hoarsely, "get! Get out—this instant!" And I shoved the case toward him on the table.

I had expected a brazen smile and a smart answer, but I was mistaken. Hicks looked sad as he replied:

"O'Keefe, won't you let me apologize? Won't you give me a chance to make repairs? I never did you any harm intentionally, and I want to make good that which I did unwittingly. Can't you pardon a man? Say so if you will and I will go, right now. Even so I wish you would accept my little peace offering—I picked it, as you see, especially for you."

Appeal to my generosity and I am sunk. I suppose it's that Celtic blood in me or something, but that's the way it is. I knew he had won right then.

"I'll go if you say so," Hicks resumed, rising. "I came here only to . . ." He seemed overcome with emotion.

"Stay!" I said. "Don't think that I am ungenerous. Give me your hand—I know you meant no harm."

Hicks shook hands with me so hard that I got a headache.

"But," I said, "that cigarette case—I really cannot take it, old man, such a costly present—I really cannot."

"You must!" eagerly returned Hicks. "Can't let you refuse—absolutely can't. On my account, you spoiled a suit. . . ."

"Two suits," I said, reminiscently.

"Two suits," said Hicks, reddening a little, "you are right. Now I know you wouldn't let me pay for that suit—I mean, those suits—so you really must take the load off my mind by accepting this little present from me."

"Well," . . . I said.

"And besides, there is something else about that case. You haven't seen all. Turn it over and have a look."

WITHOUT a question, the Electro-Hydraulic Bank Protector is the best of the Hicks' series so far. If you enjoy rough and tumble humor, with side-splitting situations, you will enjoy this story Yes, as usual, it contains plenty of good science, and the scheme does not look so foolish as it may seem. However, there is a double-barreled ending to the tale, which will make you laugh loud and long.

The Reason Why

I TURNED the cigarette case over. On the back of it I found engraved:

COMMEMORATING THE INITIATION OF THE HICKS ELECTRO-HYDRAULIC BANK PROTECTOR

I read and below was the cryptic emblem:

"What, been initiating another invention?" I said. "How did it come off this time?"

"Er . . . not been, exactly, O'Keefe," said Hicks, "but going to. Now just a minute,—don't say anything yet—this is different," he went on hastily, as he noticed clouds forming on my brow. "This is different. The burnt child dreads the fire, O'Keefe, and I have learned my lesson. This is all right, and I think you will believe me, when I tell you that I have a banker backing me, and that the installation of the Protector in a bank is just being finished. And—I don't want you to invite anybody—I am doing the inviting myself this time."

"Where? What bank? What banker?" I asked, my interest aroused, for you know bankers are serious men—the most serious men in the world.

"E. F. Croffitt, of the Surburban National," said Hicks.

He couldn't have said more if he had talked a month. I knew E. F. Croffitt. In fact, he had recently refused to extend my note and that under aggravating circumstances. A more bloodless, cold-hearted, pigheaded tightwad surely never trod the earth. If he had committed himself so far as to allow anything to be installed in his bank, surely it must be all right. Taking chances was not in E. F. Croffitt's dictionary. All the sporting blood in his system, diluted with one hundred parts of distilled water, would have made exactly one small teaspoonful.

"If you want me to be there, Hicks, count on me. Where E. F. Croffitt takes a chance, I will, any time."

"Thanks, old boy!" Hicks heartily responded. "I am glad to say that the others seemed to feel the same way. You know, O'Keefe, life means nothing to me unless I have the esteem of my friends. That's why I came here. And that's why I wrote

the others, sending each of the men a golden cigarette case like yours and each of the women a golden vanity case. I have heard from four, and I expect to hear from the rest to-day. I am sure I will."

The Great Day

AS we agreed, I made my appearance at the Fourth Street branch of the Suburban National Bank at 9 o'clock Friday morning. There was one drawback—it was Friday—and I don't like Fridays; and on my way to the bank I noticed it was the 13th. I am not superstitious, but I was worried for a while about that combination. But finally I told myself that it was all nonsense. Besides, I was soon too deeply interested in what there was to see to be worrying about a silly matter of dates. The Suburban National had been adding to its floor space, and the new division was all but ready to be thrown open to the public. Part of the space was made a long room parallel with the street, and this was faced by the usual row of some twelve or fifteen clerks' and tellers' windows. To my cursory glance, indeed, everything looked very much like in any ordinary bank, though I remember being struck by the fact that the partition ran right up to the ceiling and though of ornate design, was unbroken except for the windows, and had an uncommonly solid appearance. My attention was also arrested by what appeared to me as an unusual number of electric-light columns, also of highly ornamental character, grouped along in front of the partition. My reflections on the reason for all this were presently terminated when Hicks, who had espied me as I entered, came rushing up and led me to meet the company. Some twenty people were present, of whom I already knew about half. I braced myself for a shock as I came face to face with Irvine. But he shook hands with me quite amicably. So did Hicks' uncle Jeremiah, who had also been present at the inauguration of the Automatic Apartment. I nearly backed out as I met Smith—he is a violent man, you know—but even he took my proffered hand. It's wonderful what those cigarette cases had done, I mentally reflected. This time I had promised myself not to bring anyone along, and so neither aunt Zelinda nor aunt Eulalia were there. Professor Dinker and his fiancée also were missing. I guess their experiences with the Automatic Apartment had been too much for their dignity. However, this lack was made up for by the company the banker had supplied. There were two other presidents of banks. One was Mr. Quague, a little skinny, hungry-looking individual, who had the appearance of not being able to count ten, but had on numerous occasions been known to multiply his assets by that figure. The other was Mr. Kragg, who was fat, coarse, wide, and an incessant talker. Three skinny females to whom I was introduced proved to be his wife, who was gushing about art, and his daughters, who had their father's face and their mother's form, with the addition of bandy-legs—not the best possible combination, I thought. Among the remaining people, I knew Mr. Schmaltz, the chief teller of the Suburban National. And then there was E. F. Croffitt himself, a tallish, bald-headed man of forty-five, who wore glasses and whose peculiar mincing gait contrasted strangely with his big feet and ungainly figure, and whose painful attempts at an engaging smile immediately brought to mind the picture of an amiable and tender-hearted snake beaming upon its intended victim. He was here, there, and everywhere, conversing in an oily and yet rasping voice, full of pride and anticipation. And now he addressed the company. He enlarged upon the crime situation in general and bank-holdups in particular, and at the end of his sonorous remarks, introduced Hicks.

"Unaccustomed as I Am—"

"I REALLY must apologize when I address you," modestly began the inventor. "I am no orator, and Mr. Croffitt has presented better than I could, the underlying reasons for the invention of the Hicks Electro-Hydraulic Bank Protector. But I wish to sketch to you the central idea back of the invention itself. Mr. Croffitt has referred to the fruitless attempts of the police to curb robberies. The police are doing all they can under present conditions. But they are undermanned and therefore handicapped to a great extent. And a more serious condition even, is the absolute failure of the courts to adequately punish those criminals whom, often at great expense and risk of life, the police do apprehend. When I say this, I am only repeating facts with which you are all but too familiar.

"Now, what," inquired Hicks, "is the remedy in the face of a situation such as this?" He paused for a moment, waiting for an answer. "If the police are unable to catch the criminals, and the courts are unable to mete out proper punishment to instill sufficient respect in the minds of those who intend to do evil, then it is up to the citizens to catch the criminal, so utterly and unfailingly defeat him, that even after he has served his term, he will remember the experience with feelings of unalloyed and unforgettable terror."

Hicks had raised his voice and emphasized these last remarks, and now he stopped to take a breath. E. F. Croffitt and the other two bankers nodded gravely in a pleased way, and a general murmur of assent ran through the company.

"The more I thought of this idea," Hicks continued, "the more I was taken with it. How to defend the bank and its treasures against the holdup man became the subject of my thoughts by day and my dreams by night. What complicated the problem was that while apprehending the wrong-doer with unfailing certainty and creating in the mind of every criminal the feeling that the bank, instead of being a fit prey for his nefarious activity, was a place to be shunned like the plague, it was necessary to guard the public and the bank employees from injury. For a while, I will frankly admit, it seemed hopeless. It would take too long to even sketch an outline of my labors, the many false scents I followed, as it were. Let it suffice that after a vast expenditure of concentrated mental effort, I finally developed the Hicks Electro-Hydraulic Bank Protector, a system of bank protection totally differing from others, a weird combination, you may think at first blush, yet I am sure you will find it a logical remedy. Strange diseases call for strange medicines.

"You may wonder, for instance, at the idea of hydraulics, of water under pressure, for a purpose such as this. At first it seems odd. But let us consider for a moment. When there is a riot, and it all seems hopeless, when the police, with night sticks and

revolvers, are unable to cope with the situation, when the unreasoning mob is no longer deterred by fear of death and injury, then who is called in? Why, the Fire Department!"

As Hicks made this pronouncement, a pleased hum of approbation could be heard. The idea had struck home.

"When the inmates of a jail or a madhouse grow rebellious and raise pandemonium in their cells day and night, and no punitive measures seem to take effect, when isolation, starvation, straightjackets are of no use, then what is?" Hicks continued, and answering his own question: "Why, water, streams of cold water, big cold streams under high pressure. As soon as the water hose is brought in, the fight, the riot, ends. No fight has ever been known to last one minute after the fire hose began to play on the fighters. Men will fight in a hail of bullets, they will brave death from bombs and grenades, they will keep on fighting after they are bleeding from a dozen wounds. But turn a big, powerful stream of cold water on them, and the most ferocious fighter quits."

"I use electricity to bring about that sudden release of the water that is necessary to obtain the desired effect. However, it also operates the armor-plate shutter I have provided for each window. The idea of so protecting the tellers' windows is not new. It has been tried out, but, for one reason or another, has met with only partial success. One of the most serious troubles is that, in his rage and disappointment, the hold-up man is apt to run amuck and kill people at random. Such a system, therefore, becomes positively dangerous. Yet, combined with the proper complementary idea it makes a splendid device. I will show you how I found this combination. I beg your pardon for a moment."

"Number nine down, Daniels," Hicks called.

In a flash, our view through the window in front of which we were assembled, into the interior of the banking room, was shut off. There was a hiss and a click, and we were face to face with grey steel.

Scientific Facts

"IT may interest you," commented the inventor, "to know this shutter is made of a new chromemolybdenum steel, which, when heat-treated, develops extraordinary properties. The minimum tensile strength is 180,000 lbs., and it shows a Brinnel hardness of about 600. In a plate such as this, which has a thickness of an eighth of an inch, no bullet from any pistol will make more than a slight dent."

Respectful silence greeted this announcement. Everybody looked serious. Somebody whispered "tremendous." Croffitt and Kragg gravely wagged their heads. There is nothing better than scientific facts to make people think, I say.

"What is more interesting, right now, however, is that the face of the shutter is formed with a number of slightly concave indentations similar to a magnifying mirror. Such a mirror is used to reflect and concentrate light. The purpose of these concavities also is to reflect and concentrate—not light, but water."

There was a ripple of excitement. The interest was rising. Apparently ignoring this, the inventor went on:

"So we now come to the hydraulic part of my system. Let us pause for a moment and see what we want to accomplish. We want to catch the criminal, that is true. But first and foremost, we want to defend ourselves against him. In these days of gang banditry, we must be prepared for a condition where one or two of a company of robbers undertake the hold-up, and other members stand ready to start a general attack if things do not go as intended. The tellers' windows, of course, present the only profitable point of attack. The modern bank bandit is a desperate and quick-witted individual. Seeing a comrade foiled by the shutter, other members might, for instance, place an explosive against some of the windows. It has been tried. So they must be warded off—absolutely prevented from even getting near a window.

"Now suppose we had a four-inch stream of water, under a pressure, say, of two hundred pounds per square inch. If we were to direct this stream against this shutter from a distance, of, say three feet, then what would be the effect?

"The effect would be tremendous. The power of a stream of water like this is something that cannot be imagined until one has seen it. Presently I shall give you a practical and convincing demonstration of what such a stream will do. In the meantime, let us reason out just what will take place. The water will be deflected by the surface of the shutter. As that surface is divided up into a number of concave surfaces having their foci placed at a variety of slightly different angles, the four-inch stream, now divided into two dozen smaller streams, will be thrown back with tremendous force from the shutter, right in the face of the attacker,—a blinding, unescapable, elemental rush of water against which there can be no thought of fight,—in the face of which resistance becomes a mere ridiculous fantasy, and action of any kind, whether concerted or not, a preposterous joke."

Why Smith Got Scared

AS the inventor paused to wipe the perspiration from his face, it was clear that Hicks' logic was hitting the mark. The whole thing had at first seemed odd, but now it turned out to be a wonderful piece of reasoning. Just then Smith nudged me and drew me aside. I looked at him. Worry was sitting on his brow.

"I am going," he said.

"What for?" I asked, astonished.

"What for! Why, because I am afraid of this nut and his stuff. Here he's got water again—and look at the force. Under 200 lbs. pressure per square inch. Why, I don't feel safe near those pipes even. It's a long time since I went to engineering college, but I. . . ."

"Why, man, you mean to say you studied to be an engineer?" This from me, for that study fascinates me beyond anything else.

"Yes, I did, and . . ."

"And now you are content to be a cheesemonger . . . er, er, . . . I mean, you know . . . I don't mean . . . I meant to say . . . Well, now . . . " I stuttered. I wonder will I ever get over that confounded impulsive way of mine of putting things. I didn't think at that moment that Smith always seemed supersensitive about that business of his—got a delicatessen store, you know.

For forty seconds Smith said nothing, but regarded me with a gaze of fierce intensity.

"You were saying," I gently urged. "Yes, you were saying . . ."

Gradually Smith's face relaxed and his glance lost some of its steely fierceness. After a pause that seemed like a month, he ground out slowly:

"Well, as I meant to say when you interrupted me, this stuff doesn't look safe to me. Pressure way too high. Too much trigger business about those electrical controls. Why, that stream of water turned on a man would be enough to throw him fifty feet, O'Keefe! I am going."

"May be so, but I am staying," I announced. "Maybe it is too high. What of it? We can always get out. We are on the street level. The room is big. There are doors. You will be missing something, if you go. If I were you, I'd stay. Come on, stay!"

Smith did not reply. Whether my argument or fear of being thought afraid changed his mind, I don't know, but he stayed. He was uneasy, though. Meanwhile this conversation had lost me a part of Hicks' speech.

Wonderful Reasoning

"VALVE practically hidden in the top of this column, and designed to throw the water at an angle of forty-five degrees to the wall surface, the water being actually deflected, however, in a general horizontal direction and straight out, by reason of the inclination of the concavities in the shutter to which I referred. While the stream as it issues from the nozzle will therefore miss the head of the person standing in front, his face and the entire upper portion of his body will be the target of the rebounding water at a distance of two feet. But even six feet away, though spread out wider, the power of the spray will still be so great that it will be impossible for any human being to hold his ground.

"You may wonder why I first direct the stream against the window. It might seem more practical and simple to direct a number of streams from the window against the intruder. But that would complicate matters instead of simplifying them. Instead of one valve I would need at least a dozen, and they would have to be built in around the window. You can see some of the complications already. And then, while such a system would ward off the bandit, it would still be incomplete protection. A bomb, with the fuse burning, for instance, might still remain on the window sill.

"With the present arrangement, not only are all complications avoided, but the torrent of water, boiling over the window, would immediately sweep away and render ineffectual any explosive charge. After all, as you see, the indirect way here proves the best and the simplest way out."

HICKS smiled a little as he noticed how his neat piece of reasoning was being appreciated by his audience. Remarks such as "sure is good," "wonderful fellow," "Isn't he just fine"—this from the women—more or less subdued, were to be heard on every side. You can bet that I shared in the general appreciation. Only Smith seemed aloof, and looked sullen and worried.

"A general switchboard," resumed the inventor, "back in the tellers' room, and which you can see through these windows in the inner banking room, takes care of all electrical controls. It is now exposed to allow final adjustments to be made, but later it will be covered by a box and locked to prevent untoward happenings. One of the controls on this board is for the operation of the shutter, from the action of which results the opening of the overhead valve. But what I have so far pointed out to you is only the first line of defense. You will remember that we do not merely want to scare the holdup man away, but that we want to apprehend him—we want to utterly confound him, all along the line. And so we come to the pièce de résistance of the Hicks Electro-Hydraulic Bank Protector, namely, the Hydraulo-Centrifugal Rotating System. It is here that the punitive features of my invention come in."

With Hicks pointing out things I quickly began to see system in the arrangement of the columns. There were four grouped in front of each teller's window to form a square having sides of about two feet and a half,—all four meeting in graceful gothic curves overhead, where they were topped by a beautiful cluster of lights. Two of the columns were within a few inches from the partition, and, in fact, ran through the counter, the other pair being set out further into the room. In the left hand one of these there was located the four-inch nozzle. And centered between them on the floor, there was a raised circular step, about eighteen inches in diameter upon which anybody would have to stand in talking to the teller. I had paid no particular attention to this before.

Some Technical Data

"THIS round step," Hicks said, "is in reality a revolvable platform. I say revolvable, not revolving, because ordinarily, it is fixed. But as soon as the shutter has dropped, it is free to revolve. You have already seen that one of these columns is really a standpipe. I want to add that the remainder are the same. And as you see here, each one of them has, at a height of from three to five feet, and under the guise of ornamental excrescences, a row of three short nozzles with a two-inch opening. Now, if you'll look closely," continued Hicks, "you will notice that these nozzles are pointed in a direction that would be about tangent to the body of the person standing on the platform. Now what is the idea here?

"Suppose we were to direct four tangent streams at the round platform on which the person stands," continued the inventor, "what would happen? Why, it would revolve—it would start to spin at a speed of which the ratio would be determined by the diameter of the platform, the area of contact, the force of the water stream, and the frictional coefficient between the water and the peripheral surface of the platform."

"Good!" I cried. "Go on!" Some of the company turned round and looked at me, but I simply can't help it, I am gone on that stuff. Some day, when I have time, I'll take a course in engineering.

Hicks looked around him, pleased, and continued: "So, when we apply the four triple two-inch streams, each under two hundred pound pressure per square inch, to the body of a person standing on a platform

—mounted, I will add, on roller bearings—and when we consider that the muzzle velocity of the stream is approximately 173 feet per second, and figure the mean diameter of the average person, the frictional area presented by the clothing, and the coefficient of friction of the clothing and water. . . ."

"Good!" I broke in. "Good! Fine!"

"Why then I find that, after all necessary deductions are made, an average rotational speed of approximately three hundred and forty revolutions per minute should be obtained."

I restrained myself with difficulty from patting Hicks on the back. Inwardly I swore he should have one of those two bottles of Hennessy Five Star I had at home. As for the company, they were humming with remarks. President Croffitt wore a broad, hard smile on his face. The other two presidents were whispering in that impressive way that bankers have.

What Happens to the Robber

"NOW," resumed Hicks, "picture the situation. The hold-up man enters. He steps on the platform—there is no other choice. The teller suddenly looks into the muzzle of a gun. 'Slip me five thou', or you're dead,' is the demand. The teller steps on the button. There is a crash—all the shutters in the room are down. Perhaps the burglar shoots—no matter, the shutter can stand it. And it would be his last vicious act, for within three-tenths of a second after the shutter is down, the twelve valves open simultaneously. The water is under 200 lbs. pressure. Escape is impossible—you cannot cross such a stream ten feet away from the nozzle, and here it is only two. At the end of the first second, the robber is spinning around at the rate of one hundred and twenty revolutions per minute. After one hundred revolutions, however, or in time, seventeen seconds, the water is shut off. We don't want to kill him, you know. Dazed, unconscious, he collapses on the floor. Meanwhile the remaining tellers' windows have automatically been closed. The rotating system is here inactive, but tremendous sprays of water from the first line defense are playing into the room. Some of the customers, of course, will get a scare, and all of them will get a wetting, but that is a matter of trivial moment compared to the fact that the attack is foiled and a decisive setback given to future nefarious schemes. As for the robber, he is beyond escaping by his own effort. There is still one possibility—he might be carried out by accomplices. But even this, his last ray of salvation, is annihilated by the final and crowning feature of the Hicks Electro-Hydraulic Bank Protector—the Adhesive Reaction.

"If you will look overhead"—we all did and for the first time I noticed, in the ceiling above us, what looked like a semi-spherical metal ornament about two feet in diameter—"you will see, corresponding with the row of tellers' windows, and exactly above each platform, a corresponding row of my patented Adhesive Droppers. Each of these bowl-shaped affairs is made in four sections, which are hinged at the top. When closed, each bowl contains—you will be surprised to hear it—one hundred pounds of the strongest adhesive known,—Le Page's Liquid Glue."

There was no question that this was indeed a surprise. Some one laughed. Banker Croffitt smiled a hard, pleased smile.

"It might look like a humorous touch," said Hicks, also smiling, "but it is, in fact, from the standpoint of the bank, the needed final link of protection, and from the point of view of the gangster, the final link in the chain that will bind his wrists. The glue is contained in an envelope of celluloid so thin that it will just suffice to keep it togther so long as it is in the bowl of the dropper, but instantly bursts into fragments when the ball is dropped. Now complete the picture: The burglar, unconscious, has collapsed on top of the platform. One of his colleagues undertakes to carry him out. Before he can even raise him, or to be exact, in two and a quarter seconds after the rotating streams have been shut off, the bowl opens and a solid ball of glue, two feet across, and weighing one hundred pounds, drops from a height of twelve feet. The effect, I need hardly say, is final, insofar as escape is concerned. Did you ever, in fastening things together, get a little glue on your fingers and then try to do anything? If you did, then you have some faint idea of what a man can do, or what can be done with him, after one hundred pounds of liquid glue have been dropped all over him."

A Case of Cold Feet

FOR a few moments there was silence, and then there was clapping of hands, led by E. F. Croffitt, himself. Everybody crowded around him and the inventor, congratulating one or both, asking questions, expressing admiration. Only Smith stood aside, with a scowl on his face.

"I am going," he said.

"Why, man, what is biting you now?"

His wife had overheard us, for she chimed in, "You are going, Billy? What for?"

"Don't like that stuff, I told you. I have a sort of a feeling . . . I am afraid of that high pressure and that fool mechanism. And that centrifugal stuff—remember the Automatic Dining Table. As for those electric controls—think of the Automatic Apartment and what it did to us. You come along."

"But I am enjoying this," Mrs. Smith objected. "I am going to stay."

"Then stay if you want to, but I am going!"

For a moment I hesitated myself, but I quickly recovered.

"Stay, Smith," I urged. "Come on, be a man. You wouldn't leave Mrs. Smith here alone, anyway, would you? Don't spoil the fun—do *me* a favor. You aren't really afraid, are you?"

That settled him. He stayed. But he was looking no more cheerful—less so, if anything.

"Now, ladies and gentlemen," Hicks' brisk voice was saying, "we will have a practical demonstration. In the rear of the room and far away from the scene of action, I have had built a platform a foot from the floor from which you may watch proceedings, dry footed, when the water starts to play. It will be confined to the opposite end of the room. I have had prepared a dummy"—here he patted the shoulder of a life-size doll, intended to represent a muffled hold-up man—"which we will put through its paces when it comes to turning the water on. But first we will need some dry action. Mr. Kragg has volunteered to play the sinister burglar, and Mr. Schmaltz will take his place at the window and represent what he is in real life—a teller."

Schmaltz, a small, round man, was immediately installed behind the teller's window. Mr. Kragg, to the general amusement, was tying a handkerchief across his face.

"All ready, Daniels!" cried Hicks. There was no answer. "Must have gone out for a moment," said the inventor. "Try your button, Mr. Schmaltz, and see if the shutter is acting. It's all safe—the water is shut off!"

A Practical Demonstration of Hydraulics

I COULD see Schmaltz moving slightly sideways as he fumbled for the button with his foot. There was a little jerk and the shutter moved, as if it were trying, but it did not come down. And then with a hiss, with the suddenness and force of an explosion, a mighty stream of water issued from the overhead nozzle and struck the counter just in front of Schmaltz. It was all so quick that I noticed Schmaltz was still smiling when the deflected stream, now flattened, hit him right under the chin. Even in that tiny fraction of a second the thought shot across my brain that Hicks had said he would give a convincing demonstration of the inconceivable power of such a stream of water,—and here it was. The next moment the rebounding stream had lifted the unfortunate teller in the air. A doubled-up ball of humanity, he was turning a rearward somersault over a table right behind him. One, two, three, four turns, executed with fantastic rapidity; the broadening stream of water playing on the periphery of the human ball that was Schmaltz and accelerating his rotation. And then abruptly, he landed, sitting down, but with a sliding motion, on the switchboard. The last thing I remember seeing were miscellaneous pieces of the bottom of his pants adhering to various levers and other protuberances on the switchboard. What became of him from that moment on I do not remember, for I was busy elsewhere.

Even before any of the women had time to give vent to a shriek, the inventor's despairing yell resounded through the room, piercing the crash of the tumbling body and the roar of the water:

"The switchboard—God help us—must get at it—doors locked!" And with incredible speed he made for the nearest window—the shutters had all remained open and the whole thing was evidently out of gear, for nothing was happening the way it should. Even as I wondered at Hicks' presence of mind, I noticed that Smith was also about to climb through another window, and I distinctly recall in that moment regretting that I had ever thought him a coward, for here he was one of the only two men of action in the crowd—the others were paralyzed. I was too.

The Hydraulic Rotating System in Action

ALL this happened in a fraction of a second. As I have observed before, in emergencies the human mind works with lightning speed. As Hicks was lifting one knee to get into the window, I heard a distinct loud "click," and at the same moment I saw ten thousand stars and found myself sitting twelve feet away on the floor, yet on something remarkably soft. I distinctly recall noticing this detail. And then I noticed that I was getting hit at rapid intervals and that I was wet, and getting wetter. I had hardly had time to associate these various facts with the tangential streams from Hicks' window, when my dazed senses were stung into wide-awakeness by the spectacle which now presented itself to my one good eye. Of Hicks nothing was to be seen, but there was a tall column of water which was whirling around with incredible rapidity, and from which at frequent irregular intervals there issued offshoots in the form of mighty spurts of water in four directions. Simultaneously, a roar as of a high-power turbine, punctuated by staccato splashes as the branching streams hit something or somebody, was to be heard. The room all over was one mass of horizontal geysers and everybody present was floored, some of the company lying in heaps over each other and crawling about in their misery from one place to another, only to get into worse trouble.

I only noticed these things by the way, for my horrified gaze was riveted on the upright whirling maelstrom, which I knew contained Hicks. And then suddenly, I remembered that Smith behind me had tried to get through a window too, and turning half around on where I sat—I was quite unconscious that I was sitting on Mrs. Kragg, and as I afterwards realized, was merely feeling an undercurrent of irritation at the shrieks of agony proceeding from underneath—I saw another whirling waterspout a few feet away, with a dark core which I knew to be Smith. "Poor, heroic fellow," I remember saying to myself, and then one of the tangential streams branched off and hit me on the ear so hard that I was knocked off my perch. "And I was the one that urged him to stay!" I thought as I turned over and rolled off. A little shiver ran down my spine—it was not due to the water. I say there is nothing like the human mind—strangest thing in all the world.

WHAT I have related so far took place probably in no more than four seconds. The surprise attack had been so sudden and so fierce that only a few screams, for the most part quickly muffled by fierce darts of water, had been heard. But long before the two unfortunates ceased their involuntary mad-dervish whirl, shrieks, curses, maledictions, advice to get out, orders to do this or that, demands to stop it, filled the air. Somebody had crawled to the door and tried it. I knew it was no use—Hicks had said it was locked—it had been his last remark. Logical too—part of the scheme. I knew we were caught, even as I was ineffectually trying to dodge the fierce intermittent shots of water that were assailing me from two sides. It had just dawned on me that I might slightly better my situation by crawling elsewhere, when I suddenly noted that the streams had ceased. Instantly the thought flashed through my brain that a hundred revolutions had been completed—part of Hicks' system was working, anyway. My head was turned in the inventor's direction, and even as I was looking, the envelope of water suddenly dropped from him, and Hicks, no longer sustained by the tremendous gyratory force of the vortex, collapsed between the four columns, a wet, deformed mass.

I heard a piercing scream behind me and turned round. Mrs. Smith was draping her wet but opulent form over the prostrate body of her husband, who was dazedly trying to raise his head.

"Oh, my poor, curly-headed baby!" Mrs. Smith was saying, in a pitiable tone, as she put her arm tenderly around her husband's neck. It's funny how I am built, but even half-dazed though I was, I knew that that appellation was not altogether correct, for Smith is bald, forty years old, and weighs over two hundred pounds. This didn't seem to matter to Mrs. Smith, though.

The Power of Glue

"OH, my poor, little curly-headed boy!" she was saying for the second time. "My . . ." She got no further. There was a rush as of something soft and heavy. A dark, shadowy form swept by, there was a dull, heavy "sap!" and Mrs. Smith seemed to crumple upon her husband, while her head and shoulders were blotted out by a greenish mass about two feet in diameter.

It was one of the Adhesive Reactions—I knew it instantly.

"Help! I . . . gob . . . gob . . . gob . . ." I turned to see whence the new cry of alarm issued and saw Hicks, who had managed to sit upright, looking like a humorous sketch of a deep-sea diver. His head appeared six times its natural size, enveloped as it was in a hundred-pound gob of liquid adhesive. In that moment I knew what he had meant when he talked of the psychological effect of the thing—it was awful. And yet I knew only the beginning.

E. F. Croffitt sprang to the aid of Mrs. Smith. All bankers are chivalrous. He could not make her hear, for the adhesive had enveloped her entire head in a coat an inch thick and was slowly spreading in heavy greenish streams down over her body or dripping off, here and there, in big drops,—but he sought her hands with his and succeeded in raising her. Just then Mrs. Smith blew an opening through the coat of glue over her mouth. A blood-curdling shriek rent the air, as she fell around Croffitt's neck. The banker tried to get away, but there was no getting away. Instead the lady drew him closer and closer to her bosom, blindly seeking protection, where she knew there was human flesh. It was in vain that Croffitt exerted his utmost strength to escape the viscous embrace. His struggles only got him mixed up more, and it was not long before he was smeared with glue from head to foot. The adhesive by this time had worked down on both their garments and was all over their shoes. The two, Mrs. Smith holding the banker in a tight embrace, were executing a strange two-step on the mosaic. Their shoes got stuck on the floor by the heavy, sticky mass that was running off them, and this made their efforts increasingly more frantic. Under Croffitt's superhuman struggles to wrench his feet free, first one Oxford, and then the other, followed by both his socks, remained adhering to the floor. As they stumbled about in their weird and sticky dance, they backed into the inventor, who had made a breathing hole in his glue mask by swallowing a quart or so and, in trying to claw some of the stuff off his head and neck, had enveloped his hands in sticky gobs eight inches in diameter. Under the impact, he now put these out blindly and closed them from behind over the banker's face. Croffitt's roar of rage at this new injury shook the ceiling, but was almost instantly stifled, as a big gob got lodged in his mouth. He swallowed hard—down it went.

Schmaltz Does His Bit

WHILE I was watching this new development with a sort of nightmare interest, I realized subconsciously that all this time the thundering of water had not ceased. I turned my head towards the partition and instantly I knew the reason. It was only the tangential streams that would cease at the end of seventeen seconds—the four-inch line of defense was going full force, but as the shutters had refused to act, they were blazing away through the windows into the interior banking room. What had become of Schmaltz? The question struck me with a sickening mental thud. Had he been killed? Was he drowned? I raised myself and looked crosswise through one of the windows. Fifteen enormous streams were playing against the opposite wall, from which they were rebounding with a frightful roar. A subdued, powerful hum, I noticed now, was shaking the room—the noise caused by the tremendously fast travel of the water through the pipes. But where was Schmaltz? There, in the midst of a boiling water volcano issuing from the opposite wall, up to his waist in water, he was,—I saw a head and arms. He was alive! He was doing something, too—fumbling with the switchboard. Good! Fine! I almost cried to know that he had not been killed.

And just then another thought struck me with annihilating force. The switchboard! Let him fool with it and only the Almighty knew what would happen next!

"Shut up! Get out! Leave it alone!" I screamed. He did not hear. The noise was too much. But I shouted again. I gesticulated. He did not see. I turned round in despair. Kragg was standing near me.

"Got to get him to leave that switchboard alone," I yelled,—"he'll raise the devil if he don't."

Kragg proved a man of action. "Let's both yell at him—he may hear that"—he roared at me, as he went as near the window to me as the oblique stream from above would let him. "Now!"

I LET out my yell—but got only half through it. Beneath the roar of waters, I heard a sharp click. There was a black flash, and I would instantly have known that the shutter was down, even if the tremendous spray of the recoiling water which barely missed me, had not apprised me of the fact. The realization that I had escaped came simultaneously with the knowledge that Kragg had not. He must have had his head right in line with the rebounding spray. There was an explosion of water as the boundless hydraulic force made contact with his face. This lasted but the hundredth part of a second, however. Then Kragg, head backwards, with inconceivable speed and the force of a battering ram, was shot out into the room. With a sickening thud, his head bored itself into Irvine's stomach—he had been standing right in line. Irvine shut up like a jack-knife, and the combined bulk of the two men landed on Quague. The sigh of the escaping air from the little banker as the three hundred and fifty pounds abruptly sat on his stomach, could be heard even through the thundering and hissing of the water.

Elsewhere in the room, the water was raising indescribable havoc. After the first baptism had ended, most of the people had instinctively backed against the wall opposite the partition, in their desire to get as far away as possible from the source of those tangential torrents. They now, however, found themselves in the very worst place, for by the time the four-inch streams had gone nearly across the room they had spread enough so that the entire expanse of the opposite wall was, to use a paradoxical expression, under fire—the remainder of the room being under water anyway—which was now two feet deep. Under the relentless play of those mighty fountains nobody was able to keep his ground. Some, on their hands and knees, were crawling out toward the partition again, others were crouched with their faces against the wall. Hats, sticks, and gloves, ladies' handbags and other articles were floating around in the boiling sea. I was one of the few who had remained near the partition and was therefore comparatively comfortable, for I was merely sitting in water up to my chest. I was still, in a dazed and detached way, admiring the strange effects produced by the mighty spray playing upon the Kragg-Irvine-Quague trio and wondering about their seeming inability to get disentangled from each other, when abruptly the streams ceased flowing and the roar of the waters ended. The stillness which followed, by comparison, seemed like the stillness of death.

The Field of Battle

HERE and there, half-crazed human beings, women with their dresses sticking to them, men with wilted collars and clothes from which the water was running in rivers, were raising themselves from the deluge. The fierce tune of the water discharge was replaced by a tune in a new key. Women wept and sobbed. Men cursed, as yet weakly, but as if they meant it. As reason began to return, ominous glances were focused in the direction of Hicks. So far as he was concerned, the water display had been a benefit, as it had to Mrs. Smith and Croffitt, by washing some of the glue off them. Smith himself was propped up against the wall. His face was pale, but his glance was ferocious, and it was bent upon me. I regretted to see how quickly he was recovering. Mrs. Smith's face was clean, but her hair was a solid mass of adhesive. Croffitt had risen. He had a thick wad over his neck and ears, and his entire front elevation was still besmeared with the stuff. As he stood there in this array, minus shoes and stockings, I decided he did not make a very impressive figure. But his glance at Hicks was absolutely frightful. The water was rapidly draining off—that part of the system was working, anyway. With my mind still in a reel, I dully, vaguely wondered what would happen when those people really woke up. And then the thought flashed through my mind that after all, we—this company—were the best proof of the efficiency of the Hicks Protective System. How could robbers hold up a bank such as this?

A Little Surprise

THERE was a pounding at the door. "Help is coming!" cried Mrs. Kragg, jubilantly. "We are rescued!"—A fool remark—what in the devil did we need rescuing for, anyway. All we had to do was to walk out. I might even slip out—ahead of Smith. I felt better.

The door opened. Four men entered. They closed it behind them. I was surprised to note how carefully they closed it.

The four men advanced. At first blush, these rescuers did not look inspiring. Two were little skinny, ferrety-looking individuals with hard, shifty eyes and harder mouths. The third was a brutal-looking, heavy-set young man who chewed a quid, and the last man who entered, a lank, hatchet-faced individual, had a positively evil look.

"Hold up yer hands an' line up agin de wall, if yer don't wanna be killed," ordered the lank individual. And he jerked out a big pistol, which he waved in our general direction. "Now don't make no noise. Shoot de foist guy wot makes a wrong move, Butch," he said casually to the heavy-set man.

"Sure will, Jake," replied that worthy.

"Now go t'rough deir clothes, yer two," ordered the leader, for none less was the lank man. At this, the two ferrety-looking yeggs started a business-like survey of our clothing. They worked fast, yet took time to be thorough, and it was surprising to see how much they collected. Watches, rings, bracelets, jewelry worth thousands of dollars, were stripped from us in a few moments, and this was joined by an equally large sum in cash.

"Now, ole Baldy," the leader disrespectfully addressed E. F. Croffitt, "show us de way to yer strong room an' open it fer us. Dere's a good guy—yer don't wanna have de sexton t'row de doit on yer nose in a coupla days, does yer, now?"

"Why, I have no vault here . . . at least, the money isn't in it. It's in the other part of the bank," stuttered Croffitt.

"Quitcher lyin', yer big stiff," snarled the leader, "an' show us de coin."

"I . . . I . . . I assure you," said Croffitt.

"Lemme put a knife atween 'is ribs, jes' lemme," chimed in Butch. "I's jes' a-achin' ter do it, Jake, an' it ain't gonna make no noise."

"Get busy sudden or yer'r dead," snapped Jake, and shoved the muzzle of the big pistol right under Croffitt's nose. The banker's face grew ashen. "I will," he whispered.

While the two rat-faced men held the rest of us at bay with drawn revolvers, Jake and Butch entered the inner room. I could see, from the point where I was standing, how with trembling hands, E. F. worked the combination. He stepped back, and Butch by him, pistol pressed to his side. The leader went in and presently came out with several bundles of bank notes. Evidently he was an expert who did not care to encumber himself with heavy stuff. E. F. Croffitt groaned. "Don't take it—there's a hundred thousand dollars. Please don't—I am a ruined man," he moaned.

"Course we ain't gonna take it, Baldy," observed the facetious Butch. "'Jes' gonna look it over an' see if it's all dere and den give it back to yer. Jes' bank examiners, dat's all we is, ain't we, Jake?"

"Sure," that worthy responded. "Jes' a-takin' care o' the interests o' de dee-positors, dat's wot we is."

When Croffitt had been conducted back among us, the four hold-up men backed away a few steps and the leader addressed us.

"We been a-watchin' yer li'l game fer a while,"

said Jake. "Kinda kep' me eye on de joint. Le's see how dis 'ere bank pertective stuff woiks, I says ter me li'l playmates here. An' it sure woiked. Ain't youse de guy wot invented it?" he suddenly asked, turning to Hicks. The inventor, pale, slowly nodded.

"Say, buddy, I likes yer," Jake said, impulsively. "Yer done us a good toin. I likes yer, an' here is four bits what says I does," and diving in his pocket, he fetched out a half-dollar and pressed it into Hicks' hand.

"Now, Gummy, do yer stuff! We gotta be a-goin'," he commanded. At this word, one of the rat-faced men drew out a small parcel, which he deftly lighted and threw in the air. Almost at once the room was filled with dense black smoke.

"Stay dere, an' don't raise hell or yer'll all suffer," was the parting command, as the four crooks went out through the door. We heard them lock it from the outside, and then the cry "Fire! Bank's afire! Ring de alarm!" which was immediately taken up by other voices outside.

The Morristown fire department is celebrated for its efficiency. It seemed that we had hardly had time to stumble about in the dense smoke to try the door and find it really was locked, before we heard the clanging of the bells and the shriek of the sirens. In a jiffy, in less time than it takes to tell, plate-glass windows were smashed in, and six tremendous streams of water played into the room, searching every corner. In vain were our shrieks, yells, curses. There was smoke, and where there is smoke, there must be fire. That was enough. The Morristown fire department know their duty. It was only after our company had been floored for the time, after we had been utterly confounded and beaten down, and were crawling around in two feet of water in a condition of absolute and abject misery, that a fireman climbed through to investigate.

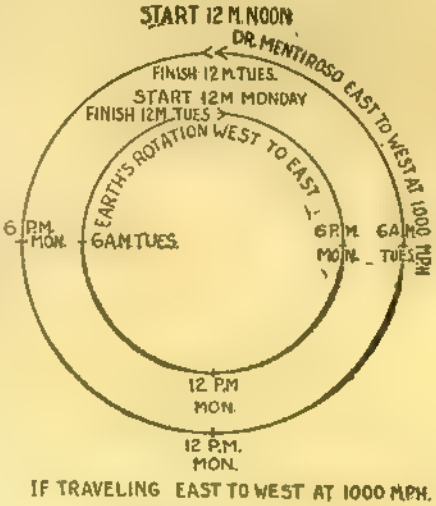
I was not present to hear what was said. Neither was Smith. Neither was Hicks. For we were going down the street. Smith was running like a long distance champion. But over my shoulder I saw he was hopelessly outdistanced—I was ahead of him, you know. And I looked back a number of times to reassure myself, for Hicks, who was ahead of me, was going so fast that I seemed to be running backwards. And I wasn't trying to catch him at that—maybe Smith was. I reached my apartment and locked myself in—and next day I left for the West. I needed a vacation.

THE END

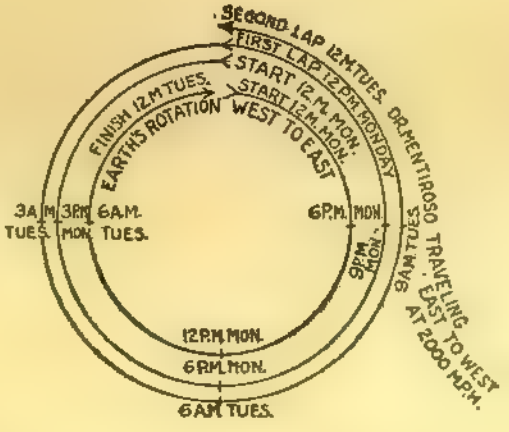
The Author's Explanation of "The Astounding Discoveries of Dr. Mentiroso"

THERE are several "catches" in the story of "The Astounding Discoveries of Doctor Mentiroso" and therein lies the solution. If Doctor Mentiroso traveled from west to east at 1,000 miles per hour and was free from all frictional resistance and the attraction of gravitation he would remain approximately over the same spot upon the earth indefinitely as the earth would be traveling at the same speed through space; and without the resistance of the atmosphere or gravitational pull he would be left far behind unless he were traveling eastward at 1,000 miles per hour. If he reversed his direction and headed west at 1,000 miles per hour (being of course free from gravitational pull and atmospheric resistance) he would be passing the *surface* of the earth at 2,000 miles per hour although still traveling about the earth's axis at 1,000 miles per hour. Hence he would make a complete circuit (although in an opposite direction) every 24 hours, so that the sun (to him) would rise in the west and set in the east and his days would be 24 hours long. He would arrive back at his starting point 24 hours later, with his time agreeing with the earth's time at that point. If he traveled at a speed of say 24,000 miles per hour it would not affect the earth's time, but would merely result in each of his days being one hour long, or in other words, the sun to him would rise and set every hour. As all our time is based upon the earth's rotation and orbit, Doctor Mentiroso's time (if traveling faster than the earth and free from its atmospheric envelope) would have no real connection with earth time. It would in fact be similar to time upon a distant planet. Theoretically, he would of course, return to his starting point before he left it, provided he went by earth time; but just as soon as he begins traveling about the earth's axis faster than the earth itself, he produces his own individual time. In other words, if his days were one hour long (when traveling at 24,000 miles per hour) according to our conception of an hour which is one twenty-fourth of the period between sunrise and sunrise, then *his* hours would be one twenty-fourth of an earth hour and his speed based on that would be only 1,000 miles per his hour. The whole question is one of relativity, and regardless of what speed he attained, his time in relation to earth time would remain constant, and the instant he set foot on earth he would find that the time was precisely what it would have been had he traveled about the earth's axis at 1,000 miles per hour.

The accompanying diagrams will perhaps make this clearer.



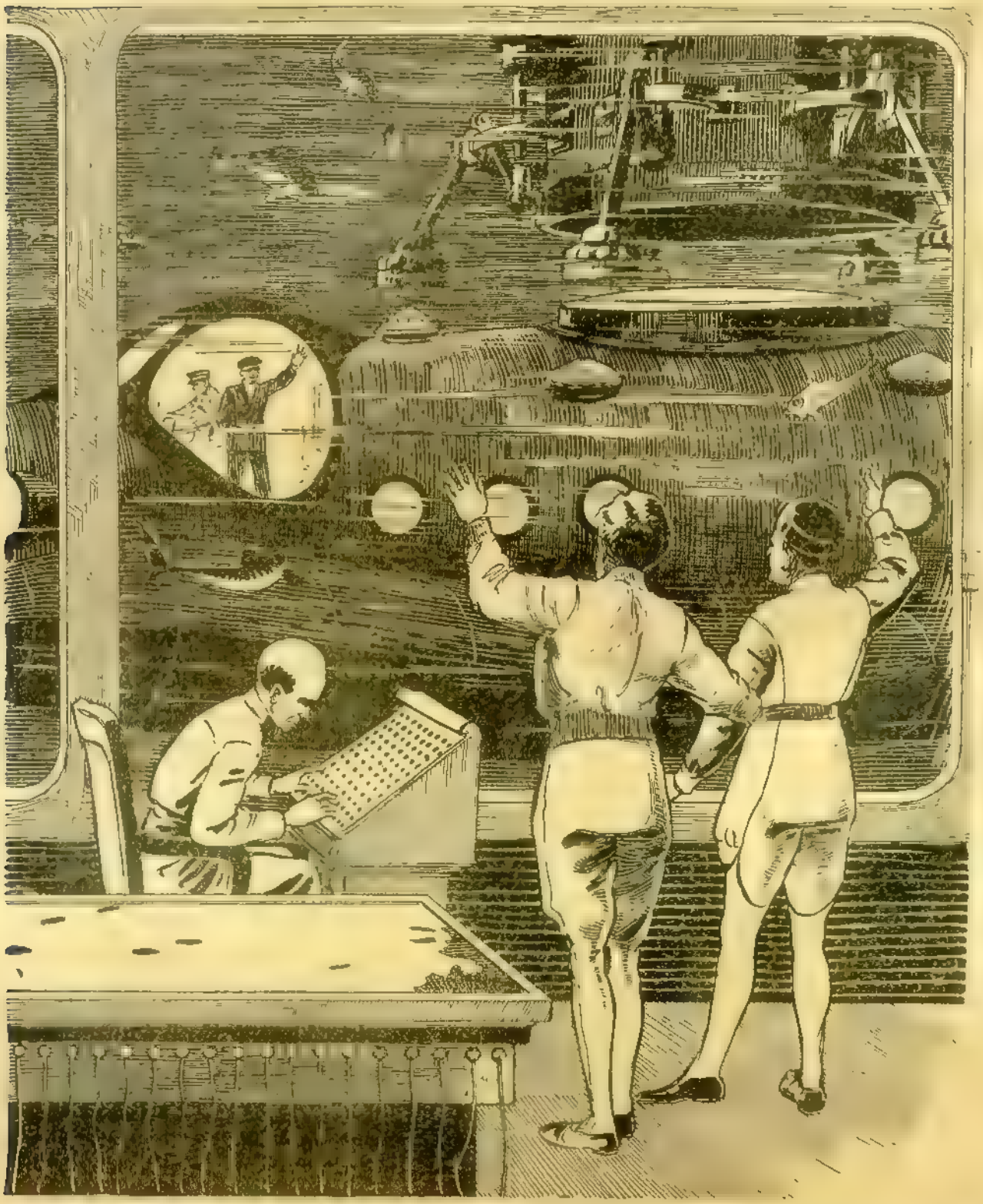
IF TRAVELING EAST TO WEST AT 1000 M.P.H.


SECOND LAP 12 M. TUES.
FIRST LAP 12 P.M. MONDAY
START 12 M. MON.
FINISH 12 M. TUES.
START 12 M. MONDAY
EARTH'S ROTATION WEST TO EAST
DR. MENTIROSO TRAVELING EAST TO WEST AT 2000 M.P.H.
3 A.M. TUES.
3 P.M. MON.
6 A.M. TUES.
6 P.M. MON.
9 P.M. MON.
12 P.M. MON.
6 P.M. MON.
6 A.M. TUES.

IF TRAVELING EAST TO WEST AT 2000 M.P.H.

THE UNDERSEA EXPRESS

By J. Roaman



. . . As I gazed out into the green liquid on the far side of the glass, I was conscious that my friend had touched the operator at the switch board. The . . . as I looked the glass came nearer . . . and with a sudden pumping of my heart I knew that my ship had come at last. . . . The giant cigar-shaped vessel slowly nosed her way . . . and as the forward portion of her length slipped by I saw the captain at the bridge, which resembled a small bay window, waving a hand to Mr Babbington

2500 A. D.

FOR years I had planned a voyage to London in one of the big I. E. C. submersibles, yet never until this day had I been able to adjust my business and other affairs so as to arrange the trip. There were compensations in this, however, for the patents of the International Express Company had lately expired, making it possible for me to see the newer developments which had placed the Company's vessels so far ahead of the many other submarine ships that unloaded their cargoes from the water-filled labyrinth beneath the city streets. Mr. Babbington, Vice President of the Company, had been kindness personified. He had arranged for me to see everything. Yet, as we waited for a sight of the scheduled ship, each succeeding minute served to increase my impatience.

Half an hour of this and I was decidedly ill-humored. I glared about the little subterranean room, noticing for the tenth time, the small elevator which nestled in the corner ready to lift us to the level of old Broadway 300 feet overhead. I stared balefully at the pale little man who sat before a small switchboard fingering a row of push-buttons. I felt like clutching his throat, not because he was the cause of the submersible's lateness, but because I was angry and he was anemic and miserable-looking. My eyes wandered to the channel side of the chamber, an immense wall of thick, though transparent glass, the size of a show-window, whose protecting bars of steel reminded me of the prisons used in the days of our forefathers. Then, as I gazed out into the green liquid on the far side of the glass, I was conscious that my friend, Mr. Babbington, had touched the operator at the switchboard. For a moment I thought the latter had turned on another big lamp, which was filling the channel with light, but as I looked, the glare came nearer, and with a sudden pumping of my heart, I knew that my ship had come at last.

The giant cigar-shaped vessel nosed her way along and as the forward portion of her length slipped by, I saw the captain at the bridge, which resembled a small bay-window. He waved a hand to Mr. Babbington, whom I heard muttering about Fate and Fortune and the monetary value of the forty-five minutes which the submersible had lost. Then, just as I read the large white letters upon her hull, signifying that she was the International Express Company Ship Number *352* of New York City, she came to a stop with a gentle tremor against the bumper side-clips.

A second later the pale operator pushed one of his buttons and as my eyes followed the direction of his, I saw a huge vertical cylinder cleaving the water in its descent upon the waiting submarine . . . There was a mild clash of steel on steel and then, as another button felt the anemic finger of the operator, six metal arms swung out from the cylinder, locking themselves firmly to as many thistle-keys. Simultaneously, a current of bubbling water began to stream from a series of electro-hinged ports extending around the base of the big tube. This, however, ceased in a few seconds, whereupon a light flashed on above the switchboard.

"Come on," cried Mr. Babbington. "That's the signal—the water is ejected from the cylinder. The *352* will open her hatches and loading will begin."

I followed him into the elevator which whisked us up 265 feet to the loading room where the clang and din of New York's busy streets were wafted down through the ventilators. These noises were as echoes of the sounds which should have issued from this room of arriving crates and departing boxes. But from the room itself there were no loud noises, no clashing of heavy articles, no shouting, no rattling of trucks. I noticed piles of packages and crates deposited gently on the floor by compressed air chutes leading from the checking room on the street level. Each pile was labeled according to its destination—Seattle, San Francisco, London, Paris, Singapore, Peking, etc. The shipments for Chicago and Seattle were at the moment being gathered up by powerful little gas-reciprocating cranes and dumped on large lift platforms which carried them up through the ceiling. Mr. Babbington nodded toward the ascending boxes. "To the Air Liners," he said. "Elevators go to landing towers on the roof."

WE arrived at the tubular shafts leading to the channel in time to see my baggage disappear into the depths. Two elevators were unloading while a third sent down a stream of various sized bales. Soon one lift was switched to loading work and shortly after all three were carrying down their consignments destined for points in the British Isles.

As the loading work neared completion, the passenger lift brought up a ruddy, white-haired man dressed in the uniform of a ship captain.

"I'm sorry, Mr. Babbington," he said advancing toward us, "But I can make up the forty-five minutes if I can get up on the surface somewhere on the other side of this storm."

"That's all right, Judson," replied the Vice President with more good humor than he felt. "But what happened to you? My locator dial showed you off Sandy Hook not two hours ago."

"Didn't you get my message?"

"No, I have been showing our plant to my friend here." And turning to me, "This is Captain Judson, skipper of the *352* who will take care of you aboard ship."

Judson shook my hand heartily and continued.

"There is quite a blow out there," he went on. "Some surface ship dragged her anchor and pulled up one of those old, old cables—a relic of the days of wire communication. Well, it fouled my propeller and I had to stop long enough for my divers to repair the damage."

"I trust you have better luck this trip," replied

IN these days of trans-Atlantic flights, one would think that the idea of an undersea express would be rather far-fetched. But this need not necessarily be so, for the simple reason that when trans-Atlantic flying becomes commonplace, as it will during the next few years, such traffic, due to the high cost, will most likely be for passengers. The heavy freight will continue to travel by ocean liners, or perhaps by the undersea express, for better speed, as no storms will impede the progress of a subsea vessel. There are other advantages, too.

Our new author, being a Lieutenant in the U. S. Army, takes us into the not-too-distant future, and somehow you gain the impression that it is all very real, and that you may live to see it.

Mr. Babbington in serious tones. "You have a consignment aboard which must reach the London office of Littleton & Roberts by 5:00 P. M. tomorrow; otherwise we lose the $50,000 guarantee we put up."

"Don't worry, we shall reach London on time," said the captain.

A hurrying official brought Captain Judson his clearance papers before Mr. Babbington could put in another word, and we all walked to the passenger elevator. A handshake, a wave of adieu, and two of us were speeding downward through the steel tube.

I stepped out into a well-lighted passage-way as Captain Judson, following me, pressed a signal button on the door of the elevator. This conveyance, passengerless, rose from our midst and disappeared up the shaft. Some unseen mechanism caused the heavy rods and guides to slide noiselessly against the wall and the great hatch slowly swung upwards on its hinges to close the aperture above it. Before I followed my conductor toward the bow, I heard the grating and clank of metal above the closed hatch as the cylinder was released from its thistle-keys.

"Captain," I said with some awe, "suppose that through an error, one of those telescopic cylinders should be withdrawn before you close the hatch? We should be drowned like rats."

"Couldn't," he retorted shortly, "thistle-keys won't unlock until hatch has clicked shut."

We emerged into a chamber which the captain identified as the bridge. Opposite us I could see the channel lights through the long narrow arc of glass extending from beam to beam. A seaman stood at the wheel surrounded by numerous dials and indicators. Captain Judson joined him and, when a green light flashed on above the binnacle, moved forward the throttle.

I looked out and saw the slimy walls of the channel slip by under the intense brilliance of our headlight. At intervals, traffic lamps came into view and shadows flitted across our bows as we approached and passed under them. Twice I saw submersibles being loaded from cylinders similar to that through which I had descended.

In the distance appeared a red light blinking rapidly. I noticed our skipper's hand retard the throttle and felt the thrumming of the ship decrease to a bare perceptibility. We came to a complete stop beneath the red glow and, as I strained my eyes at the window, a tremendous submarine vessel lumbered athwart our bow.

"United Tobacco Freighter," mumbled Judson. "Biggest submersibles built—800 footers, but very slow."

The light suspended above us turned green and the *352* forged ahead. We emerged into a small lake where the helm was put over hard so that the beam of our headlight shone into another channel leading to the open sea.

FIFTEEN minutes had passed when a young man walked in.

"This is Mr. Larkin, my First Officer," grumbled the captain, by way of introduction.

We bowed and grinned at each other as our commander continued.

"Those two lights we just passed mark the entrance to the channel," he said, addressing me. "See that green light off our port bow? That is the Rockaway Guide Light. Over there is the Manhattan Beach Guide,—yes, that flashing one. In a few minutes you will see the Sandy Hook Light off our starboard side."

I remembered having read about the latter light—the most powerful in use. It was invented by Gauttauve, who, after spending his life in research, offered the results of his labor to the government. But although the strongest underwater light then known could not be seen from a distance of eight miles, this wonderful lamp was rejected. Gauttauve died a soured and disappointed man, but his discoveries and inventions, as united in his lamp, lived after him to light the submerged shores of the principal ports of the world.

Larkin interrupted my thoughts by stepping up to take his turn on the bridge, but Captain Judson shook his head.

"I'll stick it out until we get well away from these lights and buoys," he said. "You take our friend through the ship."

Larkin smilingly led me down the corridor.

"The Old Man is obsessed with the idea that all those lights are confusing to the rest of us," murmured the first officer good humoredly. "The truth is that he is prejudiced against them. He prates for hours at a time of the days when submarine navigation was done with no other aids than headlight and compass."

We went down a short companionway to the engine room where the powerful machinery was driving us along at ninety knots an hour. Just inside the door and extending across the breadth of the room, were batteries of immense vacuum tubes whose cathode rays gave off characteristic gleams of phosphorescence

"Each one capable of 500 H.P.," remarked Larkin, simply, during his explanations.

But to me the real marvel was the gas, which, under the magic of cathode rays, possessed unfathomed properties of expansion. The great difficulty in its use was to employ all its tremendous power; that is, to control the expansion. Larkin told me that the man who could do this would receive a fortune even greater than that of Carpenter, the discoverer of the gas.

I WATCHED the great whirring turbines and wondered if man-made machinery could ever withstand the full power of the expansion. I heard the whistling gas leap from the triple expansion chambers and, still under the action of cathode rays, slash against the vanes of the turbines only to scream its way out on the far side and die a natural death in the refrigerating system.

We began the inspection of the ventilating plant where pure oxygen, manufactured from bilge water, was diffused through every inch of our ship's four hundred and twenty feet of length. I was about to press Larkin for details when an alarm bell on the wall began ringing furiously.

"Every man to his post!" he shouted. "Come on to the bridge and we'll find out what's up."

We rushed in to find Captain Judson bending over the collision guide. "We're going to be delayed!" he groaned "Have to go to the assistance of a tramp. The lubber was too near the surface and scraped the bottom of an iceberg. Well, we'll see what can be done. Larkin, take a turn about the ship and see that everyone is standing by. You may then remain at the P. E. while I keep the bridge."

As the mate departed, I glanced at the depth indicator. The arrow was fairly flying, 450, 460, 470, 480 it read. The pointer on the collision guide now extended straight toward our bow.

A nervous voice shouted from the communicator horn, "Ahoy, *352*, do you hear me?"

Judson growled assent through his communicator mouthpiece.

"Well, for God's sake, hurry! My power plant is dead now and I can't get any more pressure in my safety tanks. We'll be cracked like an egg shell if you don't reach us soon. We're at 600 feet now and still going down."

"I'll be alongside in five minutes," returned Judson through his mouthpiece. "How much water are you taking in?"

"I don't know. I think I'm full amidships," was the response. "My engineer had to run for it just now. He says the water is seeping in fast."

For a short while there was silence broken only by the singing of my ears subjected for the first time to the increasing air pressure of the compensating tanks.

Captain Judson suddenly spoke into the communicator. "Ahoy, *Bristol*," he cried. "Can you muster enough pressure around your intake pipe valves to receive a pump line from us?"

"Lord, no!" came the reply. "There's no chance of your pumping. My pressure wouldn't stay up for ten minutes."

Judson ground his teeth. "Well, what do you expect me to do, sink with you?" He paused momentarily, and then, "You've turned down everything I've suggested. Now this is my last word. I'm not going to attempt the saving of that tub of yours. She is completely gone anyway. You've no power and but little air and you're filling fast. I'll take off your crew and that's all."

He ceased, with an angry snort, and cut off our power. The friction of the sea slowed us down almost immediately and as we eased along, I caught sight of a long finger of metal shining in the beam of our headlight.

It was the *Bristol*. She was settling by the stern, her bow at an angle of thirty degrees vainly pointing toward the surface, which her tireless crew had fought so hard to gain. She was going faster now and only a few moments remained before she would fall into that sickening dive from which there is no recovery.

But our skipper brought us alongside with consummate skill. As I looked out on the port side it seemed that I could almost touch the great black hull which descended nearer and nearer to our level. Judson, too, gazed at the disabled submersible, his hand on the depth valve key which he turned with a slow, continuous motion, keeping pace with the sinking shell beside us.

Then he nodded at Larkin in the doorway I dashed out to the passenger's emergency port, called the P. E. aboard ship, arriving just in time to see two of the crew enter the little chamber. Before the heavy hatch closed behind them I caught a glimpse of their gigantic copper extreme-pressure suits. Then as the steel cut them off from my vision, the outer hatch was opened and the sea entered the chamber with a noise like thunder.

I held my breath while the dauntless two sought the stanchions of the *Bristol's* emergency hatch. The *352* was worked forward ever so little, but always sinking, sinking.

ABRUPTLY Captain Judson's voice yelled into the communicator, "We've got you, we've got you! Quick! Get your men aboard."

There was a faint answering roar of crashing water, then the whistle of compressed air in our own chamber. In a moment the inner hatch opened and a dozen men staggered into view.

I turned again to the bridge with the intention of congratulating Captain Judson for his fine work, but that old sailor was doubled up over his depth valve key.

"They've got no more pressure," he muttered half to himself. "The skipper is alone—had to work the valves for the others. He's going to open his hatch and try to drag himself against that deluge——"

Suddenly there was a gurgling smash. We looked up quickly as the elevated bow of the *Bristol* came down opposite our windows. The sight seemed to freeze Judson to immobility, one hand on the depth valve key, the other on the throttle. While he watched during that breathless moment, the *Bristol* hovered on an even keel and then with a quick lurch, her bow settled and the long, black hull plunged downward. At the same moment a claxon sounded discordantly and I was knocked to the floor by the instantaneous jump of our ship as Judson opened wide the throttle. But we were safe from the dangerous suction and we had saved our men—snatched him from the jaws of death.

The nervous tension over, Captain Judson swore softly at the loss of our lead gangplank which had been torn from its runners by our sudden forward lurch for freedom. Except for this slight outbreak, however, everyone went about his work quietly and as Larkin took the bridge and began the long, gradual ascent to our cruising depth, I turned to seek my stateroom.

I must have slept heavily, for when my first meal was finished, I saw the noon shift walking aft toward the engine room. I hurriedly walked in the opposite direction, mentally framing an excuse for my laziness; but when I reached the bridge, there was not a soul in sight. To say I was puzzled would hardly describe my sensation, but as I pondered this peculiar situation, the truth dawned upon me—we were on the surface. That continuous sheet of water beating against the glass was our bow spray; that bright light was the glorious sun.

I raced for the companionway leading to the after deck and stumbled up the steps. Larkin, at the surface gear, looked through his goggles at my puzzled expression.

"Had to come up to make up our lost time," he explained. "We're making 130 knots now."

Indeed, every appearance supported the truth of the latter assertion. Although the sea was smooth and the swell was hardly discernible, the whole forward portion of our deck was awash in the stream of foam displaced by our piercing bows. The wind, whistling through the surface gear, burned into my eyes and tugged at my clothing. Yes, we were indeed speeding and I wondered if our artificial wind was much less than that created by the great airship which passed over us just then, some 6000 feet in the clouds.

My reflections were cut short, however, by the

(*Continued on page* 877)

CRYSTALS OF GROWTH

By Charles H. Rector

. . . then a shudder passed over his frame and before my eyes he commenced to increase in size . . . here before my eyes growth was taking place immediately. It was almost unbelievable. . . . He towered over me like a giant. He grew so tall that his head touched the ceiling. "Try one yourself, Jameson," he said, "and increase your size."

THE strange and extraordinary events connected with our lives have always been of exceptional interest to me and even as a boy I was never more contented than when I was reading some good ghost story or examining some so-called "haunted house." As I became older, this liking for mysterious things developed into a study and investigation of matters dealing with the psychic and occult. I have visited many spiritualistic séances and have given reports concerning them to the public, through recent letters.

However, I am not a fanatic on any of these subjects, and devote only a small portion of my time to these pursuits, for a well established law practice engages me the major part of the time

Among the events which have happened during my studies of psychic science, there is one which to me is most vivid; something which has left a very marked impression upon my mind. I refer to Professor Brontley and his theory of rapid growth Early last spring I became acquainted with the prominent teacher and writer, James H. Brontley, whose remarkable achievements in the field of biological chemistry have won for him a wide-spread and well deserved prominence. Professor Brontley and I became fast friends and I considered myself fortunate to have the opportunity of knowing him so well. We would often sit for hours and converse upon subjects of common interest.

One evening I sat in my chair musing before the comfortable fire; I had just finished my dinner and was resting quietly thinking of the latest accomplishments of my friend Brontley. He had confided to me a short time previously that he was experimenting upon a subject which, if successfully attained, would secure not only personal fame for him, but would be a wonderful benefit to mankind He had told me nothing of the nature of the experiment and I was thinking of this particular thing, wondering when he would have something definite to say to me about it, when the door was suddenly opened and the very person about whom I had been thinking came into the room and dropped down in a chair near me He looked exultant and excited and as he shook my hand he burst out

"Jameson, I've found it at last and I have come to tell you about it"

I looked at him in surprise. What did he mean? I grasped him by the arm and asked, "Do you mean that your latest experiment has been successful? You mean the experiment that you have been working on for the last six months?"

"That's the one It's the greatest success of my life and I want you to know about it first Listen,' he said as he shoved his chair closer to mine, "and I will tell you all about it

"Growth, as you know, in both the animal and vegetable kingdom, is the result of the digestion and assimilation of the various elements and compounds which the animal or plant obtains, either through food and drink or, in the case of plants, through the absorption of fundamental elements from the soil through the roots and tissues, or from the air The changes which take place are rather complex, and just at present are not of primary importance to the subject which I wish to disclose to you.

"As you are well aware," he continued, "different foods affect the body in various ways. Some foods are more efficient than others; we speak of this relative digestive value of foods as the 'coefficient of digestibility' which means, in simple terms, that a larger percentage of some foods are digested than of others. Some animals can utilize more fiber than others can, and some can make better use of the protein than others. I have some plants under observation in my laboratory; some of them fed on various kinds of fertilizers, while others have had no application. The difference in the growth and sturdiness of the plants which received fertilizer over those which did not is most marked You have often noticed adjacent fields of corn, one of which looked in all respects better than the other. This is an example, on a larger scale, of the very thing which I have tried out in my laboratory, one field of corn had more food elements available in the soil than the other."

I nodded in affirmation, too interested to say a word, and he continued his narrative, his dark, piercing eyes fastened upon mine.

"THE statements which I have made thus far are all perfectly natural facts, obviously true, if one only takes the opportunity to look about him in Nature's laboratory, the great outdoors. We take it as a matter of fact that in youth we grow a few inches taller and a few pounds heavier each year. But have you ever stopped to consider why this growth should be comparatively slow?"

The enormity of the suggestion almost paralyzed me Was the Professor trying to change the order of the universe? I looked at him sharply. Apparently he read the expression of doubt and wonder in my face, for he said sharply:

"I know you wouldn't believe it, but I have long maintained that there must be some exceedingly concentrated form of food elements some substance in which the coefficient of digestibility is nearly perfect if not absolutely so I have long upheld the belief that there must be some food in which the residue or indigestible part is practically negligible. If one could find such a substance, would it not be reasonable to suppose that he would derive a much greater benefit from it than from ordinary food?

"I have been experimenting upon this subject for a long time and at last I have found it—a perfect food which has the power of increasing one's height and weight almost instantly. No doubt you find it difficult to believe, but I can prove my statements; I want you to come to my laboratory with me and witness a demonstration which will convince you that I am no prevaricator"

I naturally agreed to accompany the Professor to his rooms, for my curiosity had been aroused.

As we passed down one street after another, I found it difficult to keep up a conversation. After some monosyllabic answers I realized that my com-

WHAT makes giants, and what makes dwarfs? Scientists of today are unanimous in the opinion that these conditions are created by the thyroid gland If it were possible to systematically stimulate these glands, there is no question but that a race of giants could be produced It is not at all impossible from a biological standpoint and from experience gained in the laboratory, to know that it can be accomplished In "Crystals of Growth," the author spins an excellent tale.

panion was engrossed in his own thoughts, so I walked along quietly beside him, meanwhile wondering what surprises the evening had in store for me.

At last we halted before his home. Professor Brontley motioned to me to follow him and in a moment we were ascending the stairs which led, as I assumed, to his laboratory above. I had never been in his laboratory before and consequently I was exceedingly anxious to see the place where all of his wonderful discoveries had been made. As chummy as we were, I had never had the opportunity of seeing the interior of this place, probably because of his desire for secrecy in regard to the progress of certain tests which he was making. At any rate, I knew that it was an important experiment that would cause him to invite me inside of his work-shop.

Finally we reached the third story of the house, and stopped for a moment before a door which was securely locked. Evidently the Professor was taking precautions against unexpected visitors to this particular room while he was away. He drew a string of keys from his pocket and after unlocking the door he pushed a button in the wall and the place was flooded with light. I followed him into the room and looked around.

It was an ordinary chemical laboratory, such as I had seen many times before, containing various sorts of apparatus which one usually finds in a place of that kind. The shelves along the side were filled with bottles of different colored liquids and a long table in the middle of the room was covered with racks of test-tubes, Bunsen burners, beakers, retorts, flasks and other laboratory materials. My friend told me to seat myself and observe closely everything that he did.

I WILL attempt to narrate as accurately as possible everything which took place in the laboratory that night. After putting on a rubber apron, my friend placed a pair of ordinary motor goggles over his eyes. He then took a large flask from the shelf, examined it closely and placed it on a tripod. Following this act, he removed from a rack before him, five different colored liquids. From each of these he measured an equal portion, and poured it into the large flask upon the tripod.

"These five liquids represent a preparation of the five most essential substances in our food," he explained; he added nothing further and I did not press him for additional details.

The next thing he did was to light the gas beneath the tripod and standing a short distance away, he watched with suspense the mixture within the flask. For a short time there was no apparent change, and then as the contents became warmer, there was a hissing sound accompanied presently by a crackling and snapping not unlike the snapping of a wood fire. The mixture was now boiling. A light curl of fumes issued from the neck of the flask and there was a slightly pungent, but not unpleasant odor noticeable in the room. The Professor allowed it to boil for possibly two minutes and then turned off the gas. He stirred it slowly and then dipped a piece of blue litmus paper into the flask; the paper turned red, showing that there was an acid reaction.

"Now for the last step," announced my friend, and added a few drops of a light blue substance from a bottle near by. There was a sharp report like a pistol shot and a shower of yellowish-brown crystals fell upon a tray beneath the tripod. My friend carefully collected these crystals and then turning to me he stated in an elated tone:

"It is finished as I had planned, and upon these crystals in my hand depends the success of my experiment. You have witnessed a test of synthetic or artificial digestion; these crystals are the most concentrated and efficient food substance known, to promote growth. Watch me and notice their power."

The experience was too uncanny for description. I felt terror stricken as I watched him, and had an almost uncontrollable impulse to shout for the sheer relief of my overtaxed nerves, but by a supreme effort of will I resisted the inclination.

He placed two of the crystals in his mouth and swallowed them.

For perhaps five or six seconds no change was apparent; then a shudder passed over his frame and before my very eyes he commenced to increase in size. You have probably been away from home for some time and upon your return noticed the increased stature of some young friends. You remarked how much they had grown while you were away. But here before my naked eyes, growth was taking place immediately. It was almost unbelievable.

He soon towered over me like a giant. He grew so tall, that his head touched the ceiling. He began to walk toward a chair and sat down. Suddenly he stopped growing.

"My height" he said, "is now about twelve feet, a little more than double my former height. If I had wished to become still taller I could have done so by taking more of the crystals. Think what a relief these crystals will be to mankind. No more under-developed children! no more short men and short women. Tomorrow I shall show the world that I am a living proof of the existence of a super-food, the crystals of growth. Try one yourself, Jameson, and increase your size."

Thus speaking, he offered one of the crystals to me. I was tempted to laugh at the preposterous suggestion and then I looked at his face and realized how serious the Professor was. I was horrified and knew that with my friend in his present state of super-elation at the result of his experiment—there was an expression of mad fanaticism upon his face—the situation demanded tact of the most delicate nature, if unpleasant and possibly fatal consequences were to be avoided. So I decided to humor him.

"Why, Brontley," I evaded, "I don't need any of your growth crystals. I'm tall enough to suit me, and besides I know that they will do all that you claim for them, so what's the use?"

In a second I realized that he was furiously angry at my refusal to take the crystals. He came towards me and seized me by the shoulders. "You little shrimp" he sneered, "I'll show you whether you need them or not" and he began to shake me. I strove to ward off his hold upon me, but it was useless. I was like a child in his grasp and it seemed as though he would shake my head loose from my shoulders. My brain reeled, the objects in the room were becoming dim and seemed to be swimming around me. I seemed to be losing consciousness;

there were voices, indistinct and mumbling in my ears, and then . . .

"What's the matter, old man?" I found myself on the floor in my room, and looking up I saw the face of my pal, Jack Hudson, gazing down at me in perplexity. "I've been trying to wake you up for the last three or four minutes," he declared. "Hurry up or we'll be late for the show," he added, and then, "What's the matter? Did you see a ghost?"

When I had related my experience to my friend, he slapped me on the shoulder and told me that hereafter I had better cut out rich pastry at night.

My friends claim that it was only a dream, but I know that there was a peculiar odor on my clothes, such as one associates with chemical laboratories; that my friend Professor Brontley disappeared on the same evening, on which I had my peculiar experience and that he has not been found since; and furthermore, an examination of his laboratory after his disappearance, showed it to be exactly similar to the one in which I had my memorable adventure. The articles in the laboratory were in a state of confusion—bottles opened and broken, chairs overturned and the room in general in a state of extreme disorder. The opinion of the majority of those who examined the laboratory was that a violent combat of some nature had taken place. But, the crystals of growth were nowhere in evidence.

THE END

THE UNDERSEA EXPRESS

By J. Rodman

(*Concluded from page* 873)

appearance of a blue haze in the distance. Land! It became more distinct with each passing second. But just as I was beginning to watch for landmarks on the distant cliffs, the word was given to go below. There I watched Larkin dive our ship into the depths and lay a course for the Channel. Lights soon began to appear—red, green and white, some flashing, others unblinking, continuous—forming a pattern so complex and confusing that I wondered how a human being could guide us through the maze.

True to form, old Judson strode in to watch, with narrowed eyes, the actions of his protégé among the lights.

"The red lights are shoals and rocks," he explained for my benefit. "The first one we passed was Wolfe Rock. Yes, the white lights indicate a city, though there are exceptions to the rule. That's the Falmouth Light directly opposite. There's no submarine channel in Falmouth; subs have to enter the harbor on the surface. That double white light off in the distance is the entrance to the Plymouth Channel."

I became intensely interested in this submerged galaxy and the time passed so quickly that it seemed but a moment before we had rounded the green and white blinkers of Ramsgate and begun to bear down on the steady glow of the Chatham Beacon. We slowed down for the entrance of the Chatham Channel, but once within its confines, Larkin kept the speed indicator hovering around 35 knots. We glided swiftly past the submerged docks of Chatham and soon approached the brilliantly lighted passages beneath London. When we reduced our speed again I caught sight of the unmistakable lamps of the Express Company Landing, and as Larkin eased us into our berth and the bumper side-clips snapped shut, I knew the journey was ended.

I said good-bye to Larkin and his chief in the passenger elevator, so that upon reaching the street level, I immediately stepped out upon the crowded thoroughfare. A clock on Picadilly registered four o'clock less three minutes and I knew then that Captain Judson had saved the $50,000.00 guarantee and the crew of the *Bristol* as well.

THE END

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The RIOT AT SANDERAC

by Miles J. Breuer, M.D.

Author of "The Man with the Strange Head" and "The Stone Cat"

And there was that maniac Russian over there, ready to spring upon me. He glared at me with lips curled back from gritted teeth. I seethed with rage against both of them. I stood up and stole toward Grant, my fingers stretching spasmodically to get hold of him at last.

THE courts have started their slow, blundering grind at Sanderac.

First there came the newspaper headlines, screaming the shocking news over the country. The next day the columns went into details concerning the unaccountable outbreak of rioting in the little mining city. Nearly two hundred dead, buildings burned, property destroyed, and no one knew the cause. The nation stood aghast, because the perpetrators of the ferocious massacre were those who had until then been solid and respectable citizens.

I happened to have been there when it occurred. I told my story. I was scoffed at and received no attention. The courts continue to grope ineffectually about in circles. How futile they seem!

The town is built about the mine head. Its population is about half American, half foreign labor. Among the latter is a colony of Russian refugees, largely Marxian Communists, or as we know them, Soviet Bolsheviks. Their meetings were watched by the police, and some vague, ridiculous rumors started that they planned organizing a Soviet right there on Lake Superior. But no one took it seriously. On the whole, the Bolsheviks lived harmoniously with the five thousand Americans. Even the refugees belonging to the Russian aristocracy and intelligentsia got along very well with the Reds. Such is the leveling influence of Americanism.

I was visiting an engineer friend of mine at Sanderac. This was my first visit to Grant since our college days at the "Boston Tech." He had gone straight to the mine job, while I had a government position which took me all over the country. I still remembered Grant as a fellow of uncanny ingenuity as well as ridiculous absent-mindedness. He was overjoyed to see me, made me put up at his home, and took me all over the town—the town which has now become so famous.

"I have often wondered," I said to him at dinner, "why as brilliant a man as you are, is willing to bury himself here out of sight. I looked forward to your accomplishing some sensational thing in the world."

"Well, you may not be so far wrong at that," Grant said with a smile that seemed to indicate he wasn't telling everything. "This is an ideal position for me: not much work, lots of leisure, plenty of money. I'm working on things of my own, you see!"

I knew then that he had some sensational plan worked out. From that moment on, I gave him no rest until he had started out to tell me about it. I hurried myself and him through the rest of the meal. Grant took me out to a concrete shack near his building at the mine works.

It was heavily locked. Within was a workshop. From the looks of the tools and the small parts, it was evident that he was working on some delicate electrical stuff. A smooth-shaven, sad-looking man of about fifty, bent over a bench, was working on some things strung full of green-insulated wires.

"This is Sergei, my assistant," Grant said, introducing me. Sergei's face showed refinement and intelligence. His courtesy was of the European type, which Americans so admire but cannot imitate. He moved away to turn on more lights.

"Queer fellow," Grant said in an undertone. "He won't even associate with the other Russians. Used to be a musician. The Bolsheviks killed all his family."

For a moment I was more interested in the Russian than in the machine, but he was now bent over a table, studying a blue-print and putting pieces together. There was a sort of hopeless droop about him; yet he worked swiftly and with marvelous skill.

"Here we are!" explained Grant. "This is what I've spent the last ten years on."

"What's it supposed to be?" I inquired. "It doesn't suggest a thing to my mind."

There was a semi-circular keyboard, like those on large pipe-organs. The rest of it was built up into a sort of a cabinet, with bulbs, instead of organ-pipes. It was something like an exaggerated and caricatured radio sending set. There were scores of the bulbs, globular, pear-shaped, gourd-like, flask-shaped, and of all sizes from that of an egg to one as big as a pumpkin. Grant moved a switch. The complex array of bulbs filled with a pale white glow.

"They look as though they might be electron-tubes," I remarked. "Is it some form of musical instrument?"

"No. Not exactly. Sit down." Grant was elated.

So, while I found a chair, he took his place on the bench in front of the organ thing. He ran his fingers around over the keys. I stared at him in surprise. Not a sound came from the instrument. Was it some effect of light or color that I should look for? I looked closely, but the bulbs glowed quite unchanged. Was he out of his mind? Not knowing what else to do, I sat and waited patiently.

I sat bowed forward with my chin leaned on my hand and my elbows on my knees. Grant's movements at the silent machine became monotonous and depressing. The dingy, concrete walls were unutterably gray. The gloomy interior of the shack made me think of some graveyard of human desires. Even the futile wires sprawled all about, gave a mournful impression. I grew so lonesome and discouraged that I could feel the muscles of my face droop and sag Grant, failure of a fellow that he was, seemed somehow ragged and dismal as he lugubri-

MUSIC, we are told, charms individuals, not only humans. If you have ever seen a Hindu charm a snake by means of his flute, you will understand what we mean. But not all music charms; some music distinctly grates on our nerves. There are certain pieces of music, certain sounds, that arouse savage instincts in most of us, as is well known. If you ever listened to a cats' concert on the fence, you will understand what we mean, too. But there is music, there are sounds which are no longer heard by the ear, as such. Where the vibrations go beyond some 25 thousand per second, the ear no longer perceives them as sounds, yet the sounds are there, quite loud, as a matter of fact. Recently, for instance, Mr. Hugo Gernsback, Editor of this publication, performed certain experiments at station WRNY, where the audibility of the audience was tested, by means of an audio frequency oscillator. The particular oscillator used produced audible vibrations from a frequency of 100 up to over 30,000 cycles per second. It was found that beyond 15,000 vibrations per second most people could hear nothing. It was interesting, however, that a number of listeners reported strange effects noted on various animals. Some dogs and canaries seemed to be able to hear; so, while the loud speaker was silent to human beings, it was noisy enough to disturb certain animals.

A similar theme is used in the present story, which not only contains excellent science, but is an exceptional scientifiction story as well.

ously pawed the keys. I watched the heavy smoke drag across the square of leaden sky visible through the window, in the same way that my useless soul was drifting across a colorless and dreary world. The only place for me was at home with my mother; my mother of the white apron and sunny hair, who made gingersnaps for me. But my mother was dead.

Grant stopped his activity at the keys and turned around. He looked at me intently for a long time. Then he turned around and started playing again on that dumb, futile keyboard.

He danced around on his seat like a clown; like a travesty of Paderewski. He crooked his fingers into claws and brought them down wildly on the keys, and then ran them through his ruffled hair. His knees worked comically up and down as he manipulated some sort of pedals. He looked so silly that I was forced to smile. Then I leaned back and laughed. I laughed at him, and at the funny little zig-zag wires on the bench near me, like wiggling rat's tails, and at the comical shapes assumed by the wisps of smoke outside the foolish little window. The back of Sergei bent over his work was like a hump on the back of some droll camel; it made me laugh till I rocked. The whole adventure up on the mountainside with a coal-mine below and a cracked inventor pounding on an organ that wouldn't work, was all so inexpressibly funny that I laughed till I was hoarse.

GRANT was sitting motionless again, gazing fixedly at me. As my laughing died down, he turned again to the keys.

He played slowly, if I could call it playing, since I heard nothing. The crazy fellow, trying to deceive me that way! I grew impatient at him. Did he think I was a fool? I had a strong notion to tell him what I thought of him and his abortive invention. His slowness was irritating. I knew he was doing it to tantalize me. I felt like giving him a shove and knocking him off the seat—and kicking him into a corner. My fists clenched and my biceps tightened. Why had he brought me into this barred and locked stone cell, full of poisons and dangerous currents? And there was that maniac Russian over there, ready to spring upon me and kill me unawares! The coward! I looked at him. He straightened up and glared at me with lips curled back from gritted teeth. I seethed with rage against both of them. I've got to get them both out of my way before I can escape. Grant first. I stood up and stole toward him, my fingers clutching spasmodically to get hold of his throat. I wanted to maul him, to break his bones——

He whirled around and saw me. His hand shot out and moved a switch. The glow in the bulbs died out. A sudden limpness went through me; my knees went weak and I collapsed on the floor. Now everything was peace. I was myself again, wondering what had been happening to me.

Slowly it dawned on me that Grant's "playing" must have had something to do with these storms of emotion.

I sat up. Sergei was sitting in a chair, pale and clutching a bench.

"That last effect was foolish of me," Grant was saying. "You might have beaten me up before I realized what was happening. My own fault."

I stood up, feeling much better physically. Grant was again the same old good-natured, absent-minded scientific child. Sergei also walked away in deferent silence. He didn't look fierce at all, only humble and quiet, and very much a gentleman. Think of it, a concert musician now at a menial job. And a wife and two girls murdered by Bolsheviks!

"Narrow escape, I had," Grant laughed again, as I stared around, unable to find words. "And poor old Sergei was on his way out to clean up his Bolshevik neighbors!"

"What's this?" I finally demanded. "What's been happening to me?"

"You will admit that it affected you powerfully?" Grant smiled.

"I'll say it did! It nearly drove me crazy. What is it? How is it done? Tell me quick, or I'll get you yet!"

"When I explain," Grant warned, "you will be disappointed at the simplicity of it."

"I'm waiting to be."

"You know well," he began, "that emotions are purely physical states, produced by the activity of the ductless or endocrine glands. Stimulation of the suprarenal produces rage; that of the thyroid, fear and anxiety; that of the gonads, love, and so forth. Warm up the gland, increase the amount of its secretion, and the emotion follows. By mixtures and combinations, an endless chain of emotions may be produced. That is well established knowledge."

"Old stuff!" I agreed.

"The next step is, that the operation of the body cells is merely a matter of the exchange of electrical charges. Secretion, nerve action, muscle contraction, all you do, is merely a movement of electrons from here to there."

"Nothing new or startling about that so far," I commented.

"The rest isn't so old. I figured that instead of waiting till the exchange of electrons in the body takes place by chance impulse and accidental combinations of perceptive stimulation, I would make them for you at will, by shooting electrons at you out of my vacuum tubes. The numbers, velocities, and quantity-rates of discharge of negative electrons, and various varieties of positive ions, determine whether it is your suprarenal or your pituitary that is warmed up. Your body obeys; can't help itself."

"It is simple," I admitted. "But it is uncanny. I certainly felt real emotions."

"They *were* real emotions. And I had a real one, too, when I saw you coming. I was scared!"

I sat down to think over the astounding thing. He had sat up there and played on keys, and made me *feel* as I did. And since feeling controls action—that man had an instrument that could make people do anything. He had the world at his beck.

"You just got here in time," he was saying in a most matter-of-fact voice. "We were about to begin taking the machine apart and moving it to a theater. I want to give a public performance."

In fact, Sergei was already taking out the electron tubes and packing them in cotton-lined cartons.

"I'd like to see that," I said eagerly, my mind full of interesting possibilities. "When does it come off?"

"By all means come. That will be an excuse for you to remain with me for a few days. I am planning the show for next Friday. Sergei can almost handle the moving alone, so you and I can have lots of time together, for my work at the mine is light."

GRANT'S advertising for his public performance was very modest. I was afraid that he would not have much of an audience. He announced in the newspaper and on billboards that he had a scientific discovery for influencing emotions in a new way, without the medium of pictures, music, words, or other common means; something different. He told me that he did not care to have a big crowd for the first performance.

But the house was packed full. Grant's townspeople apparently knew him, and expected something worth while. The buzz of excitement through the theater swelled and waned in rhythmic waves as the people sat and looked at the organ keys and the assortment of odd-shaped bulbs. The theater was full; people continued to crowd in, and there were more people outside. And still Grant had not arrived.

He had tested out the machine in the afternoon and had waited eagerly for the evening. Then, at 7:30 P. M., he had been called to the power-house at the mine, where a safety-valve of a loaded boiler had jammed. Now it was 8:15, and the densely packed audience shuffled impatiently and broke out into occasional bursts of clapping to encourage themselves.

At 8:23 a messenger arrived from Grant with a note. Sergei, who had been hovering anxiously about the machine, took it, glanced at it, and handed it to me. The note was addressed to me.

"Bad job here," it read. "I don't know whom else to ask, and therefore I should like to have you get up and explain to the audience what the situation is. Tell them that I shall be back in an hour. They may go out, and return in an hour if they wish. GRANT."

Facing an audience has always been unpleasant to me, even for such a trifling matter as this. It took me some minutes to screw up my courage, but eventually I was in front of them.

The people looked queer. Their eyes were big and glaring. They sat up rigid. Everyone's teeth showed in an ugly snarl. Here were the town's best people, business and professional men whom I had previously met; well dressed women; as good a group as one could see in any city. But now they looked like some savage beasts.

Then, suddenly I understood. A glance backward had shown me Sergei seated at the keys, his body swaying, his fingers busy, every inch a musician. I gave one more terrified glance at the audience. Peoples' arms jerked convulsively. One by one they were leaping fiercely to their feet and surging forward. I was desperately afraid for my own safety, and I turned and fled across the stage and out of the rear door.

I ran—something I was not accustomed to do. I puffed and my head throbbed. I ran for the power-house where Grant was working on the jammed safety valve. An overloaded boiler was less dangerous than this fiercely aroused audience. The uproar of shouting and trampling behind me, lent speed to my clumsy progress.

I began to feel relieved when I saw the boiler-house in front of me. Why I do not know, for what could Grant do? Then, the boiler house acted queerly. It bulged outwards. The tall chimney stack bent in the middle like a knee, and seemed to hang that way for an interminably long time. There was a great spout of steam, and a terrible boom that reverberated and roared for several minutes. Before me was a vast cloud of steam, out of which black objects flew high in all directions. Some of them seemed to be men.

I stopped. Behind me the clamor of shouting and trampling was increasing. I looked back and saw flames shooting high in the air from the theater building. A mob of infuriated people was running, surging, pouring through the streets, brandishing things. Terror possessed me. Which way should I run?

However, I soon noted that they were not after me. They turned and flowed to my left, toward the mountainside. I stared at them, amazed, for a while. In the mean time, shots and screams and hideous thuds came from the section on the mountain slope where the Russian miners lived. Flames shot up here and there. The attack had fallen on the Bolshevik quarter, which was being swiftly wiped out.

For a moment I stood frozen in my tracks. Then I dragged myself to the garage where I kept my car. I dashed out of that place in the twilight, without a hat, without my baggage—without my mind, almost.

Now, the courts are foolishly, blunderingly groping around, trying to fix the blame. They have scores of citizens in prison—perfectly innocent citizens. I tried to tell them of Grant's instrument, and of Sergei who was a musician and whose wife and daughters were horribly murdered by Bolsheviks. But I was only told that I had not been called as a witness, and if my testimony was required, I would be notified.

THE END

WANTED

The publishers need a quantity of back numbers of AMAZING STORIES for April, May, June and July, 1926, and April and June, 1927.

If you have copies of these issues, please communicate with the circulation department. Thank you.

THE PUBLISHERS

BELOW THE INFRA RED.

by George Paul Bauer

At the very center of the two opposed forces two gigantic figures were swaying in the terrible embrace of death; one white and one black. Chest to chest they stood, the brilliantly blue orbs of Eloh burning into the black, reddy flaming eyes of the hideous, bestial-faced black ruler, their terrible wills in inconceivably intense action. It seemed like a decisive conflict between the forces of right and darkness, good and evil, angel and demon.

"EVERYTHING material is visible!" I stated flatly.

"Pardon me for disagreeing with you!" boomed a deep sonorous voice behind me.

I swung around in astonishment and with a touch of asperity, to stare into a pair of humorous, wide-set and large, blue eyes, behind gold rimmed spectacles.

The owner of the eyes nodded pleasantly, and smiled in a quiet friendly way that immediately attracted me to him.

"I can prove my assertion in a way that will convince you!" he continued with quiet assurance, but without the least touch of dogmatism.

IN this manner I became acquainted with Professor Carl Winter, Ph.D. It happened in Doran's book store; and Doran himself, with whom I had been conversing, introduced us.

Quite a conversation ensued between the professor and me. And when at last we parted I had promised, at his urgent request, to visit him at my earliest convenience, little dreaming of the strange amazing adventure that my promise would lead to.

It was about two weeks before I was able to keep my promise. Professor Winter lived on the outskirts of town, in an old-fashioned brick residence of two stories, surrounded by an extensive garden, and shaded by a great number of magnificent oak and chestnut trees.

An old man-servant, whose name—as I later learned—was Carl Summer, admitted me. He was cook and general factotum to the scientist, who was a widower and childless. The queer coincidence of their similar given names, and the diametrically opposite meaning of their surnames made me smile when I came to think of it.

I found the professor in his very completely equipped laboratory, examining something in a large test tube.

"Come in, come in, Mister Barton!" he cried cheerfully, "I am certainly glad to see you, I am sure," he added as we shook hands.

Having taken the comfortable chair at the table that he indicated, I leaned back and gazed at my host.

He was a large man, well over six feet tall, and built in proportion. His brilliant blue eyes were indicative of the scientist searching, penetrating and analytical. His broad high brow, bulging at the temples, denoted not only the student and thinker, but also the idealist and dreamer. His straight nose, strong mouth and firm jaw proclaimed him a man of energy and determination. However, the face as a whole was expressive of kindness, sympathy and warm humanity.

In spite of his age, which was somewhere between fifty and sixty, his hair was still blond, except for a tinge of gray at the temples.

He pointed to a large open volume written by an eminent authority on physics, which lay at my elbow on the table, and his voice was vibrant with energy as he spoke:

"Referring back to the conversation we had the other day at Doran's, I wish that you would kindly read the article I have marked, while I, with your permission, am completing this test."

When I nodded aquiescence, he added:

"I am quite certain that the article will serve to elucidate some of the points I advanced during our conversation at that time."

I smiled. "I certainly do need a great deal of light on certain things, and I am always willing to learn."

"I congratulate you upon your attitude," he said cordially.

I adjusted the book in question upon my knees, and read the following interesting postulate:

"While vibration ceases to affect our senses at 40,000 vibrations per second as sound, we find ourselves conscious again of periodic motion when it reaches 398 trillion times per second; then we hear with our eyes, or see with our ears, whichever you choose. The sensation is in all cases the effect of motion.

"There is much food for thought, or speculation in the thought that there exist sound-waves that no ear can hear, and color-waves that no eye can see. The (to us) long, dark, soundless space between 40,000 and 398 trillions, and the infinity of range beyond 764 trillions, where light ceases in the universe of motion, makes it possible to indulge in the speculation that THERE MAY BE BEINGS WHO LIVE IN DIFFERENT PLANES FROM OURSELVES, AND WHO ARE ENDOWED WITH SENSE-ORGANS LIKE OUR OWN, ONLY THEY ARE TUNED TO HEAR AND SEE IN A DIFFERENT SPHERE OF MOTION."

I STOPPED reading and put the book down thoughtfully. "Very interesting!" I commented. "But what is the idea?"

The professor turned and gazed at me quizzically.

"Did you note the part printed in capitals?" he questioned.

I nodded. "Yes; in fact I read that part of the sentence twice."

"Well, what do you think of that?"

I shook my head dubiously. "I am inclined to think that the eminent scientist's imagination ran away with him."

Professor Winter smiled in a peculiar manner, and his eyes shone brilliantly through his spectacles. "Ah! So you think that there is no possibility of an invisible world around us?"

"W-e-e-l—I would not say *impossible*, because the progress of modern science seems to demonstrate that we can hardly presume to draw the line between the possible and the impossible, but at least I would consider the matter highly improbable, and altogether inconceivable."

For a few minutes the professor silently busied himself with his chemical apparatus. Then he turned to me again, and there was an intense feeling in his manner and voice when he spoke:

"My dear fellow; what would you say if I were to tell you that I am upon the point of making the

HERE is a different sort of story, one that we instinctively know the larger proportion of our readers will accept enthusiastically. The old idea that there are other planes upon which beings exist has been exploited by many authors, but it comes to the front again in a totally different manner this time. The story is brimful of adventure and exciting interest combined with excellent science and will hold you spellbound to the end. Incidentally, the vibration theory put forth in this story is quite good, besides being plausible as well.

seemingly impossible a reality; if I were to tell you that I am about to perfect a machine which will enable me to penetrate into that world of vibration and matter that I feel certain exists below the plane of the infra-red?"

I laughed amusedly. "If you were to tell me that, I would no doubt conclude that you were joking."

He smiled gravely and nodded. "I would hardly blame you."

Then he seated himself in a chair close by and leaned toward me as he continued: "nevertheless, such are the facts! My experiments are nearly finished, and I am about to step into that unknown world! Furthermore, I would like to have a skeptic like yourself share the experience with me."

I stared at him aghast. I could not believe that I had heard aright. Finally I burst out with: "Man alive! Do you mean that you are in earnest? And that you have actually and scientifically discovered a way to see, hear and otherwise sense the invisible and intangible?"

He nodded quietly. "Yes; I mean just that—wait!" He raised his hand as I was about to remonstrate again. He pointed to the still open book which I had placed upon the table, and continued:

"As you have read in that book, the highest speed of vibration which the auditory apparatus of man is capable of registering is forty thousand vibrations per second. Above that the ear is incapable of hearing anything. Why? Because the vibrations become too rapid to affect the tympanum and chain of bones of the middle ear. In other words, they cease to be sound as far as the human ear is concerned.

"Now, it is a well-known fact that some animals can hear sounds plainly which the finest attuned human ear is unable to register. What does that prove? It evidently proves a finer adjustment or attunement, as you will.

"But at the other, the higher end of the scale, we find that the lowest vibrations of light, which the human visual apparatus is able to perceive, is the color of red, the deepest shade of it, that vibrates at the rate of 398 trillions per second. Below that the eye is unable to distinguish motion of any kind.

"You must admit that the space between forty thousand and 398 trillions is tremendous, inconceivable. Can you really believe that this great space in nature is without motion or vibration of any sort? Does it appear reasonable or logical to you that there should be such a waste in creation?

"Nature abhors a vacuum. You know that as well as I do. As far as science has been able to determine, there is something everywhere. There is no emptiness anywhere in the universe.

"So now, with these facts in mind, I want you to listen carefully to what we are going to do, you and I."

For several minutes, while I gazed at him in fascination, he sat there in deep thought. At last he resumed:

"Taking all these facts into consideration, I, quite a while ago, conceived the idea that, if it were possible to raise or increase the sensitiveness of the human auditory apparatus sufficiently, then the field of audible vibrations could be vastly extended

"At the extreme other end, on the plane of color vibrations, I conceived, in a similar manner, that if it were possible to attune the visual organs to respond to a longer wave-length, then the vibrations below the infra-red could be perceived, and naturally also the things belonging to that plane.

"Consequently, I began to experiment until my idea assumed concrete form; and I conceived an apparatus, part electrical and part chemical, by means of which both the auditory and occular organs of man could be caused to vibrate artificially in such manner as to become sensitive to the required wave-length.

"After many experiments and much expenditure of patience, energy and money, I finally attained the right results. My machine is about completed now, and I shall soon have the pleasure of inviting you to share with me the most original adventure that could be imagined."

HE sprang excitedly to his feet. "I know that such an invisible world exists!" he cried with flashing eyes. "I feel it—my intuition tells me so. And, by heaven!—I am going to prove it!" he finished with a vehement gesture.

I sat there as if in a trance. A great fantastic world of possibilities had opened up before me. The logical manner in which Professor Winter had ranged fact on fact had broken down the barrier of prejudice and skepticism in my mind to such an extent that I almost admitted to myself the possibility—absurd and fantastic as it seemed—of the scientist's scheme.

Could such a thing be really possible? Could the organs of sight and hearing be really attuned in such a way as to make visible and audible a heretofore unknown world in the universe of matter? The idea fascinated me gradually to such an extent that it was with a distinct effort that I aroused myself.

I recovered to find my host regarding me with a humorous twinkle in his eyes. "I see that the skeptic is not quite so sure of his ground," he commented.

I laughed. "I admit that your logic is very convincing and plausible. But just the same 'I'm from Missouri' and you will have to 'show me.'"

He nodded energetically. "And you shall be shown, I assure you, just as soon as my machine is completed."

IT was about ten days later, in the early part of the morning; the telephone bell rang, it seemed to me, a bit violently. Professor Winter was at the other end of the wire, and I noticed subdued excitement and tension in his voice when he spoke.

"Can you come at once?" he inquired.

"I think I can. Is it important?"

His laugh, a trifle strained, came to me. "Important! Well, rather; and you had better come prepared to stay all day and the night, too, I think."

When I hung up the instrument a sudden excitement took possession of me, and my hands trembled as I packed my things into a bag. I knew that the great adventure was just ahead.

Again Summer admitted me when I arrived at the professor's house, but this time I noticed that his face wore a very troubled expression. Without a word he took my bag and led the way

I found the professor in his laboratory, pacing up and down. His face lighted up when I entered.

"Ah! Mister Barton: you have really come—I was a little afraid that you might change your mind."

I laughed a little nervously. "Well, to tell the truth, professor, I did have half a notion to excuse

myself. But—my curiosity got the better of me, and here I am."

He smiled. "I would have been very disappointed if you had not come."

I gazed searchingly about the laboratory. "Do you mean to say that you are really ready to try the experiment now? And that you are ready to enter into the mysteries of the hypothetical world below the vibrations of the infra-red?"

He nodded gravely and turned toward the library with a brief: "Please come this way!"

Now that things were really coming to a climax I felt very much like the little boy in the ante-room of the dentist when he is about to have a tooth pulled. However, I followed my host into the spacious library adjoining the laboratory, and saw a strange sight.

In the very center of the great room, the window shades of which were closed, two large armchairs were standing side by side, almost touching each other. At the outer side of each chair was placed a strong table of oak and steel, covered with a mass of shining apparatus.

The most conspicuous thing on each of the tables was a heavy hollow base of burnished steel about two and one-half feet long, two feet wide, and one foot or thereabouts high.

The polished steel base was bolted to the heavy oaken planks of the table top, and was surmounted by a strong steel frame in the form of a lateral cross, supported by four steel columns.

Each of these columns was about sixteen inches high, and securely connected to the heavy cross piece at the top. This frame formed the support of two large spheres of metal, each about twelve inches in diameter. One of them seemed composed of burnished copper; the other appeared to be made of a silver-like metal.

These spheres were each connected to a heavy vertical shaft of steel which passed through the center. The lower ends of these shafts passed down into the interior of the steel bases, while the upper end of each was supported in a ball-bearing in the cross piece on top.

Two slightly smaller sized stationary glass globes were attached to each of the heavy supporting columns at the long ends of the cross, by means of felt-padded metal clamps, in close proximity to the nearest of the center metal spheres.

The globe nearest to the copper sphere contained a transparent liquid of a beautiful emerald hue. The one next to the silvery sphere held a mixture of the color of ruby.

From each one of the two metal supporting clamps of the glass spheres, heavy insulated flexible wires ran to the arm chairs.

Upon the seat of each chair lay a strong headdress of leather, resembling an aviator's cap. The wires from the glass sphere containing the green liquid, terminated at the sides of the cap, where the ears would be. The wires from the globe with the ruby fluid led to heavy goggles at the front part of the hoods. These goggles were of a peculiar construction, and contained double lenses with a space between them.

Professor Winter pointed to the apparatus and explained:

"To describe the entire apparatus and its operation would perhaps be too technical for your liking and would take too long. The essential points are these: In the base of the machine is the highest speed rotary engine in the world—my own invention. It is operated by electricity. The office of the apparatus is to change the vibration of both the auditory and occular organs to such degree, simultaneously, that they will be sensitive to the vibrations below the infra-red plane.

"The machines on both tables are identical, except that the controlling switchboard for both is located on my side."

He pointed to one of the chairs, to the right arm of which was attached a small board with a number of electrical contact buttons, and to which a bundle of insulated wires was brought from the base of each machine.

I nodded, only half understanding what the professor was saying. "Are you sure that everything will turn out all right?" I inquired dubiously.

"I anticipate no trouble. At the worst, nothing can happen to our physical bodies. They will be safe in this room, and Summer will watch outside the door. Anything that we might see or otherwise sense can not affect our physical well-being."

"I see," I said. But of course I did not. "Well then—" I continued— "If you think that everything is as it should be, I would suggest that we start, because I confess that I am getting slightly nervous. After all—this is quite an undertaking!"

Professor Winter nodded seriously. "Yes, you are right, and you can never know how I appreciate your cooperation in this adventure."

He held out his hand and we shook hands earnestly.

With very mixed feelings I sat down in the chair that my host indicated. "Just relax your body and your mind, and you will feel better," he advised, while he adjusted the leathern cap to my head.

A few moments later he had fastened on his own headgear. With a cordial motion, he waved his hand to me and touched one of the buttons.

Immediately a high musical note was audible. I gazed toward the apparatus at my left. The copper sphere was whirling madly, and the emerald fluid in the adjoining glass globe seemed to become intensely illuminated.

The musical note rose higher and higher, so that it seemed to tax the auditory organs to the uttermost. Questioningly, I turned toward the professor. He was just in the act of pressing another button. And immediately the white metal spheres on our respective tables began to revolve with inconceivable rapidity.

It seemed as if a thin fog was beginning to envelop the objects in the room. The fog-like phenomenon was getting momentarily more dense. The strong electric lights of the library seemed to become gradually dimmer and dimmer, until they appeared like the headlights of an automoible through a very dense fog.

It was getting darker and darker every moment now. The scientist at my side was hardly visible. And then suddenly the most absolute darkness that can be imagined enveloped us like a heavy mantle.

Temporarily alarmed, I reached out my hand and touched the professor. Immediately I felt his reassuring pat on my arm. I was greatly relieved. Evidently everything was as it should be. With hammering pulse, I awaited further developments.

THERE—was it imagination, due to my over-strained senses?—there seemed to be a faint violet light permeating the Stygian darkness.

The violet light was certainly getting stronger. My senses had not deceived me then. I waited excitedly for—I knew not what.

Suddenly I became aware of another phenomenon. The high musical sound, after taxing my auditory nerve to its uttermost, had completely ceased, and—I was almost certain that I heard a faint sound as of distant singing.

I was now in a fever of expectancy. I felt intuitively that some wonderful development was imminent. The violet light was getting brighter and brighter; and in about the same ratio it seemed that the singing sound, as of a multitude, was increasing in volume also.

What was happening? Were we really passing to another plane of existence? Was the experiment of Professor Winter about to be successful? With every nerve tingling, I waited.

All that was now visible was that peculiar fog-like phenomenon, lighted up with the soft violet light. The rest was emptiness. I gazed over toward my companion, but could see nothing of him either. I seemed to be on a lonely island in a violet sea.

And then—as if through many curtains of violet gauze, I saw all about me, it seemed, the semi-nude figures of gigantic men and women.

Suddenly everything was quite clear, and I gazed upon the strangest spectacle——

I seemed to be in a vast cathedral-like place; so vast was it, that I could not perceive the top of it in the dense violet shadows above me. Nor could my vision penetrate to the walls that I instinctively felt were on either side of me.

Great columns of what seemed to be purple-colored metal, brilliantly polished, rose upward into the unfathomable heights forming wide aisles on all sides of me. I seemed to be in the very center of the widest of these aisles.

Straight down this great main-aisle, in the direction toward which I was facing, and at what might be the end of it, I saw an immense altar-like structure of some material, which at this distance appeared to be white alabaster.

Broad wide steps led to the top of this structure, which was formed by a wide platform, covered above by a great semi-spherical baldachin of what appeared to be blue crystal.

Under this crystal dome, two great golden chairs were placed side by side, and seated upon them, I perceived two human figures—a man and a woman.

About and in front of this throne, and on all sides as far as the eyes could see, a great multitude of people were gathered. Thousands they seemed to be, of such physical perfection as to remind me of the fabled gods and goddesses of ancient Greece.

Very tall they were—all of them. I judged the men to be at least seven feet in height, and the women about six. The faces of both were beautiful and hairless, their coloring an exquisite white and rose; their hair, which the women wore long and unrestrained, and the men down to their necks, was of every shade of blond, and of a fine wavy texture.

Their heads were crowned with chaplets of gorgeous, fragrant flowers, and garlands of the same flowers adorned their bodies. With the exception of very broad loin cloths, of vari-colored shiny material of fine texture, the men were nude. The women were arrayed in a sort of simple sleeveless tunic, supported from the shoulders by narrow straps of the same material as the men wore.

They all stood erect, with arms upraised above their heads, facing the two upon the throne. And they sang an anthem of such wonderful exquisite harmony and volume, and such liquid clear tone as I would never have believed existed in the world of sound.

I GLANCED toward Professor Winter, whom I had nearly forgotten. For a moment I was terribly afraid, because I could not see him. Suddenly one of his explanations came to my mind. I gazed down at my own body, and—as I expected—saw nothing.

It was a strange, eerie feeling. I seemed to consist of nothing but brain. To all intents and purposes I was an invisible being, even to myself. But a few moments of reflection reassured me. Apparently Professor Winter's experiment was a perfect success; a monument, as it were, to his genius. As far as my senses were concerned, I was on the sub-infra-red plane, though my physical body was on the earth plane. It was in truth a most fantastic situation.

To reassure myself beyond doubt, I felt toward him with my invisible hand, and to my great relief, touched his body. He gave my hand a reassuring squeeze to indicate that everything was in order.

Naturally, I thought, as long as the machine in the professor's library was running and our visual and auditory organs therefore were tuned to a vastly different vibration, we could not possibly hear or see each other. As an experiment, I shouted, but I heard not the slightest sound.

It was a marvellous experiment and an amazing experience, and I was conscious of deep gratitude to the scientist for having given me the opportunity of sharing it with him.

We must have been invisible to the sub-infra-red people also, because those immediately surrounding us gave not the slightest sign of noting anything out of the ordinary.

The singing ceased, the people lowered their arms and gazed expectantly toward the great throne.

Presently, amidst absolute silence, the two beings on the throne, whom I judged to be the Rulers of these people, rose from their seats, came to the outer edge of the throne platform, and faced the audience. And even at that distance I realized that physically they were superior even to any of their own subjects.

The man wore a sort of tunic of white shining cloth, which came almost to his knees, and was suspended by a strap of gold from his left shoulder, leaving his right breast free. Upon his broad chest an emblem in the shape of two outspread wings glittered and scintillated with every movement of his perfect body.

His companion Ruler wore a similar sleeveless tunic, but suspended from both shoulders, and dropping just below the knees. And upon her perfectly rounded bosom glittered a similar emblem of double wings. Their feet, like those of their people, were bare. And they also had adorned themselves with the beautiful strange flowers.

I watched, continued to watch them, fascinated

Each one raised the right hand with the palm outward, and placed the left hand over the heart. And while they stood thus they sang a duet of such harmony and perfect symphony that I was completely entranced.

In some mysterious manner their singing suddenly became intelligible to me. Through some marvellous process of the mind, I was able to receive telepathically the thoughts they meant to convey, without knowing the language itself.

Our language is very crude compared to the perfect song-language of the sub-infra-red people. But the following is approximately what they, the Rulers, conveyed:

"Beloved people! in the name of the Ruler of the visible and invisible universe, welcome!

"This day, which marks an illuminated period in the cycle of our reign, beloved brothers and sisters, fills our hearts and minds with great happiness. For it has proven to us anew the strong divine bands of the affection which unites us all together into one people, one family.

"And it shall ever be our greatest task and sincerest endeavor to continue with you in the same happy harmonious relationship. Receive, therefore, our blessing, and vibrations of affection for your devotion and fidelity, and let us ask also for the blessing of Him who rules the universe."

With that they raised both hands heavenward, and together with the people who followed their example, they sang a short but rousing anthem of gratitude.

An ecstatic silence of some minutes followed the singing as the people and their Rulers stood there with arms still upraised, and faces expressing joyful gladness and hope.

Suddenly a peculiar feeling came over me. I felt that I was gradually rising out of my physical body. It was an indescribable sensation. It seemed that I, the soul, was slipping out of my invisible physical shell, like a snake slipping out of its last year's hide.

The peculiar eerie thing about the process was the distinct feeling that in some dim past I had passed through a similar process.

I thought of the professor and wondered what he would have to say about this wonderful phenomenon when, lo! there he was standing at my side, perfectly visible and smiling at my evident astonishment and agitation. What is more, he appeared very much younger than when I had last seen him.

Glancing down at my own body, I found that I also had become quite visible by some wonderful alchemy of nature. And with the ability to see my body once more, came the feeling that somehow it was not the same body, but a new body which pulsated with all the virility and elasticity and joy of youth. I possessed the same tireless energy and buoyancy that I remembered having when a boy. It was marvellous, unbelievable. At last I seemed to have discovered the fountain of eternal youth.

"What in the world has happened now, Professor Winter?" I inquired. "What does it all mean?"

He smiled radiantly, and his eyes, from which the spectacles had disappeared, were brilliant with enthusiasm when he answered: "It means, dear friend, that I have attained more, infinitely more, than I dreamed. It means that the vibrations of our physical bodies were raised to such a degree that our spiritual bodies have temporarily become liberated and separated from our physical shells. To all intents and purposes, we are now inhabitants of the plane below the infra red."

I nodded somewhat dazed. A slow dim comprehension was beginning to filter into my mind. However, there were some things that I was utterly unable to understand and grasp. Therefore I put another question.

"You spoke about ourselves being in our spiritual bodies. I don't seem to be able to grasp that part of it, although, in a dim way, I seem to grasp something of what you mean to convey. What *do* you mean?"

He nodded with sympathetic understanding.

"I shall explain with the greatest pleasure: The higher science has discovered, and absolutely proven by means of personal demonstration and experiment, that man is a triune being. That is to say, man consists of a soul, which is his real ego or self, a spiritual body, and a physical body.

"The physical body and its sensory organism is the soul's instrument of expression and manifestation while living on the physical plane, by means of which it gathers experience and knowledge for its development and unfoldment, according to nature's law of evolution and progress.

"After the change called death, the soul and its spiritual body, which latter co-exists with the physical body during earth life, withdraws from the dead shell and takes up its life on the spiritual plane where it leaves off on the earth plane. The spiritual world being a material world similar to the physical, but of infinitely higher vibration and refinement, there are then duties to perform, work to do, and experience to gather for the soul; this it does by means of the spiritual body and its sensory organism, which is identical with, but infinitely finer, than the physical sensory organism.

"In other words, the soul continues to carry on its search for the truth, for knowledge and wisdom in that world as in the physical world; and from it when its time comes, it evolutes to still higher and finer planes of existence, in still finer bodies, conforming to and consistent with the vibrations of each particular plane. How far this process goes on no one knows, not even the wisest of the masters of wisdom on any of the planes know.

"Nor is there death; it is only a change to another body, in order that the soul may continue in its evolution. It is all just a matter of different vibration. For instance, if it were possible to so attune the physical sensory organs as to correspond with the vibrations of spiritual matter, then it would be quite possible for any of us to see or otherwise sense anything that goes on in the spiritual plane closest to earth. But this would conflict with natural laws, the laws of vibration, and it is therefore impossible. No one can change or overcome the laws of nature."

I GAZED in wonder at the man of science and marveled at his knowledge. "But," I objected, "have we not just found that the laws of vibration, as you call them, can be changed? Are we not in a spiritual world in our spiritual bodies? Has not your machine accomplished the impossible?"

He shook his head and smiled quietly.

"No, you are mistaken. Since our materialization on this plane, I know that rather than having changed the attunement of the optic and auditory organs, my apparatus has raised the vibration of the entire

physical body to such a degree as to enable the spiritual body to pass through and out of the physical shell.

"Let it be understood, however, that this plane is only another physical plane of different vibration, and that we are able to realize these vibrations with our lower spiritual senses. Moreover, the body in which you perceive me is not my spiritual body; it is only a vito-chemical substance which covers my body and makes it visible and tangible on this plane, because this substance is of the same vibration which belongs to this plane."

I shook my head. "It's too deep for me, professor, even after I have experienced it. And I am willing to take your word for it."

We had become so engrossed in our conversation that we quite forgot our environment. Perfect silence reigned. But it seemed to be a silence vibrant with human magnetism.

We gazed about us. The sub-infra people apparently were able to see us also, for every eye in that vast place was fixed upon us in seeming wordless awe and astonishment.

Presently we perceived a movement at the end of the central aisle, where the throne was located. And then we saw that the two Rulers had descended from the throne and were coming toward us.

A lane formed rapidly in the great throng of people, and along this the majestic couple advanced with quiet dignity. A few paces from us they stopped and raised both hands, with open palms toward us.

"Welcome, strange friends!"

It was as if they had spoken in our own language, so clearly did my mind receive the thought behind their words.

Following my companion's example, I also raised both hands in their manner, also attempting as gracious a smile as our hosts gave us. To our great astonishment and embarrassment both embraced each of us in turn, and touched their lips to our foreheads.

We were unable to say anything.

The greetings over, the exalted brother—such was his official title, we learned later—took the professor's left hand and led the way to the throne. His fellow Ruler, a woman of transcendant beauty and grace took possession of my left hand in like manner, and we followed.

From every side the people seemed to greet us with brotherly acclaim and smiles of welcome. It was indeed a triumphal procession. I walked as though in a dream. The glorious woman at my side emitted a perfume like attar of roses, subtle and delicate like the scent of a dewy rose at sunrise.

It was wonderful, almost intoxicating, and from her hand there passed to me a current of magnetism that was intensely delicious, causing my entire entity to vibrate with a strange power and awakening all that was noble in my soul.

What a marvelous world, I thought, and how marvelous this human perfection of the flower-bedecked people all about me. It was as if I were the hero of some wonderful romance, walking to the altar with my beloved princess. Past great metallic shining ornamental columns of immense height, unfathomable in the all-pervading strange violet light, and presently I became conscious of music, soft, sweet and entrancing, like the wind sweeping gently over the strings of ancient æolean harps.

We were upon the platform, facing the people, who were gazing up at us in expectation. Perfect silence reigned; even the soft music seemed to have ceased. We two earth dwellers were between the royal pair, standing at the outer edge of the throne-altar.

With exquisite courtesy, the exalted brother spoke to us: "Strange friends, in the name of our people we beg of you to tell us where is the land you call home, and in what manner you have appeared so mysteriously among us.

"We saw you first as indistinct luminous shapes, and then you gradually took the forms of men.

"Tell us, are you men or spirits?"

EVERY eye in that immense assembly was riveted on us. At my earnest urging, the professor began to explain the manner of our appearance there.

It was strange but just as we readily received their thoughts, by means of the invisible waves, so they quickly understood us. Apparently the high vibration of our semi-spiritual bodies made this possible and natural. Words were merely a matter of form and sound.

When Professor Winter had finished, the Ruler turned to us with a radiant face. "It must be a wonderful world to which you belong. Can you return to it as easily as you left it?"

Professor Winter gazed at me in a distinctly deprecating manner, and spread out his hands in an expressive gesture of helplessness. "That, Exalted Brother, is something I do not know." He indicated me with a respectful wave of his hand as he continued: "When I began this experiment with my honored friend I did not anticipate such an amazing success. I never dreamed that we would be liberated from our physical bodies and consequently made no arrangements for such a contingency." The gaze he directed toward me was expressive of deep regret as he finished:

"I am now extremely sorry for having placed my friend in such a predicament!"

With a smile that must have expressed my deep content, I waved his regret aside. "Don't worry about me, old chap, I am perfectly satisfied! Never in my life have I imagined such wonderful surroundings, and such a delightful situation. I have no family ties, and like yourself, will not be missed in that dreary old world of ours."

The man of science appeared greatly relieved. The Ruler smiled approvingly. "I, Eloli, wish to commend both of you for your courage! In like circumstances there are few who would show the same degree of courage; and——" here he turned to his companion, "—I am certain that my dear sister Ealara will concur with me."

The beautiful, angelic woman at my side smiled sweetly and nodded. The light from her radiant blue eyes caused my pulses to beat with a rapidity I had never experienced before in all my life. My whole body tingled and glowed with exaltation.

Both the professor and I bowed in recognition of the generous praise.

The next minute our hosts conducted us down from the throne, and again we passed along the great center aisle through the human lane of beautiful, scented people until we came to an immense semi-circular portal, resembling the great outer doors of

some of the cathedrals I had seen in Europe. A moment later we passed out into a garden of enchantment.

At last I had a very definite conception of what the fabled garden of the Olympians must have been. And there above us, was our old friend, the sun, apparently the same, yet shining with less glare, and emitting only moderate heat.

Great shady trees were all about us. Some resembled palms, with immense leaves about twenty feet long, and the width of a man. Some were like the banyan trees of India with many trunks, graceful as the exquisite columns of the Alhambra of Spain, creating avenues under their great leafy domes of emerald, where promenading was delightful.

There were also other trees, and shrubs, too numerous to mention. And the flowers! Some of these were the same fragrant white blossoms with which the people were decorated and which our guides wore; others resembled immense orchids, vari-colored, and exhaling a perfume like heliotrope.

Hundreds of varieties abounded everywhere, set off exquisitely against the blue-green grassy moss which covered the ground like a deep soft carpet, over which we passed without a sound.

I noticed no flies or other insects, but at intervals, like the flashings of exquisite gems, brilliantly plumed birds passed over the flowers and through the foliage overhead.

I turned to view the place whence we had emerged, and an exclamation of amazement escaped me, which startled my three companions. I looked at Professor Winter and pointed. His gaze followed the direction of my hand, and he also uttered a cry of amazement.

The great auditorium was located on an immense cliff of a white marble-like stone, which by some wonderful, incredible feat of sculpture, had been formed into a gigantic bust of a beautiful woman, perfect in every detail. It was stupendous, and we two earth dwellers could only stand there and stare, lost in admiration of the titanic work of art.

A duet of musical soft laughter aroused us from our contemplation. Eloli and Ealara were gazing at us smilingly. The soft harmonious voice of the latter caressed my ears.

"You are gazing upon the likeness of Sainana, first woman Ruler of Alania, our country, dear friends."

Professor Winter expressed himself in an enthusiastic manner, and praised the colossal, yet exquisite, work of art, while I concurred most heartily.

"There is nothing to compare with it in our world!" he emphasized.

I nodded. "The sphinx of Egypt compares with it as the moon to the sun, both in size and in beauty; the great pyramid of Gizeh could be placed within the superb head and leave enough room for an army."

The two Rulers were greatly pleased with our expressions of appreciation. Eloli explained:

"Thus do we honor our best beloved ancestors, by using their likenesses for our most sacred abode, our home. Since many generations this has been the custom of our people."

WE PASSED on and presently came to a sort of circular pavilion, built of a marble-like semi-transparent stone, and covered by a great hemispherical dome of emerald-hued transparent substance.

The great dome rested upon an exquisitely sculptured entablature, supported by a great number of slender graceful columns. In the center, under the emerald roof, a marvelously executed group of two nude maidens formed from an alabaster-like substance, caught our eyes the moment we entered the cool interior.

The two figures stood back to back, and their sweetly smiling faces were raised upward to where upon their elevated hands they supported a great bowl of tulip formation from which a great fountain of water shot upward fully forty or fifty feet, curving outward and downward in an immensely enlarged form of the bowl, and falling in a refreshing aromatic shower into the wide crystal basin beneath.

Winding our way through the myriad ferns in beautiful stone containers, we soon found ourselves on the edge of the great crystal basin. Courteously our hosts bade us to be seated upon the circular bench which surrounded it, and which permitted one to refresh his feet in the cool water beneath. Quickly the professor and I removed our shoes and emulated the example of Eloli and Ealara, his sister.

Eloli emitted a peculiar high tone, and immediately two beautiful maids appeared. One of them bore a crystal tray with a basket woven from a gold-like metallic wire, from which several different kinds of aromatic, beautifully colored, strange fruits peeped forth temptingly.

The other held a tray of golden metal, upon the artistically engraved surface of which stood four vessels, shaped like large eggs standing on their ends with the large portion cut off, and the lower part supported in tripods of metal, like transparent gold.

With her own hands, Ealara took one of the vessels from the tray and presented it to me, while her brother offered the other to the scientist. Hesitantly I received the delicate container from my beautiful hostess and placed my lips to the edge of the fragile transparent vessel that seemed to be made of the finest white porcelain imaginable. Carefully I tasted of the cool, slightly effervescing liquid and found it marvelously palatable and refreshing. A wave of new strength seemed to course through my body from it, and involuntarily I smacked my lips as I finished the last few drops.

In courteous terms I expressed my appreciation and was just about to ask how the beverage was made, when suddenly we heard distant cries as of fear, and a commotion outside in the garden.

Eloli and his sister rose quickly and gazed in alarm toward the entrance. A moment later a young Alanian rushed in, sank to one knee and bowed, with his left hand placed over the heart and the right flat against the forehead.

"Exalted Brother, the Pluonians are coming!" he reported and there was suppressed excitement in his voice.

The Pluonians! I felt some calamity at hand; and the suddenly stern face of Eloli confirmed it. So even this paradise was not without its snakes. I gazed at Ealara. She was calm, and her eyes were fixed upon her brother's face with quiet confidence.

The latter made a sign for the messenger to rise.

"Bid Alam to come immediately!" he commanded.

The man made an obeisance and sped away.

"Who are these Pluonians, Exalted Brother?" Professor Winter inquired.

Eloli folded his great arms across his wide chest and his face was very grave as he explained:

"The Pluonians are a terrible enemy, a lower race than ours, who hate us because of our progress and our harmony among ourselves. Occasionally they enter into ruthless warfare against us; often they come in the night and carry off our women and children. Come! Every minute counts now!"

We passed out of the pavilion and just outside of the entrance were met by a powerfully-built martial-looking Alanian. This was Alam, chief of the Alanian army. He bowed deeply to the two Rulers. "I await your orders!" he said simply.

Eloli spoke rapidly: "Are the warriors ready?"

Alam inclined his head." They are now forming for the defense."

"And the women and children?"

"They are being rushed to the top chamber."

Eloli nodded. "It is well, I shall lead in battle myself!" he stated sternly.

Then turning to Ealara he placed both hands on her shoulders and his eyes radiated a world of tender brotherly love as he spoke gently: "Sister beloved, do you go and comfort the women and children, and pray to the Great Ruler of the Universe for strength in our bodies and power to overcome the evil will of the enemy."

They embraced tenderly and kissed each other upon the cheeks. After taking leave of myself and the professor, she walked rapidly away, with such grace and lightness that she seemed to float.

After having received several rapid orders Alam hurried away also. Eloli turned to us, and there was genuine sadness and regret in his eyes.

"Friends, I am very sad that this trouble had to occur to mar the pleasure of your visit among us! Let us hope and pray that ours will be the victory."

Both the professor and I fervently seconded his wish

"Come," he said, "I shall lead you where you will be safe, and whence you can witness that which shall take place."

He led us swiftly back to the great human edifice, past the wide portal. From the outer gate in the high garden wall a steady stream of women and children flowed toward the palace, to disappear through the wide portal into the interior.

They were coming from the city outside of the palace walls which we had not yet seen. Some of the women were calm, some excited and some evidently frightened. But most of the children appeared to enjoy the prospect of war and excitement.

As we learned later, there was a great inner stone staircase which led to the top of the immense stone figure, into the head of it. Just at the level of the gigantic eyes was a vast observation chamber; and it was into this that the women and children entered for safety's sake. The bottom of the stone stairway was, in times of danger, closed by means of a huge block of stone and could be opened only from within, so that the inmates were safe as long as their water and food lasted. The eyes of the head served as windows. These immense apertures, by the way, were the only window openings in the entire colossal edifice.

A SHORT distance from the main entrance Eloli stopped. We were facing a smooth wall. He touched a certain spot, and to our great surprise a large block of stone swung outward as if on hinges, disclosing a narrow stairway beyond. Embracing each of us in turn, the Ruler pointed to the stairway.

"This stair leads to the chamber of Loalio, man of wisdom. He will explain to you many things. Go in peace!"

We entered, and immediately the stone door swung back into place. We began to mount the stairs. The illumination here was the same peculiar soft violet light that we had first observed in the great auditorium of the palace.

Search as we would we could not discover the source of it.

"It must be some sort of radio-activity that generates it," my companion observed.

I nodded. "Quite possible! Besides, do you notice the peculiar invigorating quality it possesses?

He said that he had observed the same thing.

Here the stairs made a sudden turn, and a moment later we found ourselves upon a narrow stone balcony formed by an ornament around the neck of the gigantic head, just under the chin.

Immediately we became absorbed in contemplation of the strange panorama spread out below us.

Far below the stream of humanity was still pouring into the palace grounds; the women and children passing on, and the men forming into battle formation at each side of the main avenue. We observed many touching scenes of leave-taking.

And then on either side of us we saw the city!

Never could I have imagined anything so fantastic!

Picture to yourself, if you can, a great multitude of the most exquisite gardens, and in the center of each the marvelously sculptured bust of a beautiful woman or a handsome man; and at intervals two of them together.

A movement in the palace gardens below attracted our attention; With difficulty I removed my gaze from the wonderful, now deserted city.

The army of the Alanians were marching out of the great outer gate to meet the enemy. Quickly, marching ten abreast, they moved out over the immense moss-covered plain fronting the palace. Far away, on the other side of the plain was dense forest. And from this forest, while we watched appeared a dense, dark mass which we soon learned were the Pluonians.

My gaze turned again to the thousands of stalwart Alanian warriors, and presently the conviction struck me that there was something strange about them. For a few minutes I puzzled about the matter, then suddenly I had the answer.

I turned to my companion. "Professor Winter, do you not notice something strange about those soldiers, who go out to meet the enemy?"

The keen eyes of the scientist concentrated upon the Alanians, and he emitted an exclamation of surprise. "By Jupiter! You are right, Barton—there is not a single weapon on any of them."

I nodded. "Exactly! That is what struck me as being so odd; so unusual to our terrestrial minds. What under the sun do they fight with?"

"You shall see in good time, friends!" A deep, vibrant vaice uttered the words immediately behind us.

We turned quickly in surprise, and beheld, regarding us with a benevolent smile, a venerable old man, who had stepped from a chamber, the narrow door of which we had not before noticed.

It was Loalio, man of wisdom. His long wavy hair, white as freshly fallen snow, hung down over his back. He was dressed in a long white robe that came to his bare ankles. His face, which in common with all other Alanians was hairless, bore such a sublime expression of benevolence and sanctity, that I experienced the involuntary desire to kneel down before him and ask for a blessing. His deep blue-gray eyes and wide high brow indicated the student and thinker, and gave one the impression of infinite wisdom. His mouth was firm but kindly, and one looked in vain for any weakness in his face.

His feet and head were bare, and across his chest, suspended by a golden chain, he wore the same glittering ornament in the shape of two outspread wings that distinguished the two Rulers of Alania.

He extended a hand to each of us in hearty welcome, and I felt a strong flow of force from his hand into my body.

The welcome over, he continued his explanations:

"You will find that there are more powerful forces in the universe than the weapons of war on your plane, which I see depicted in your mind, and which bruise and tear the body."

With a wave of his hand he again turned our attention to the field of the coming battle.

Although the distance to the ground where the two opposing armies were approaching each other was about five miles, the atmosphere was so marvelously crystal-clear that distance seemed annihilated and we could see almost every detail with perfect distinction.

But Loalio, with exquisite courtesy, handed to each of us what appeared to be a mirror with a thick back. The instrument was constructed from a light silvery material, and the lens was of perfect quality. He waved his hand toward the battlefield. "Observe well!" he suggested.

Following his directions the professor and I held up the instrument between us and the vista before us. I heard the amazed exclamation of my companion. And no wonder! With a clearness that surpassed that of any optical instrument I had ever seen on our plane, the lens recorded the far scene as if we were within a few feet of it.

THE Alanians and the Pluonians! No greater contrast could be imagined. While the Alanians were white-skinned, fair-haired, and blue- or gray- or gray-blue-eyed, the Pluonians were dark-skinned, some almost black, black-haired, and their eyes of the color of jet.

While the Alanians were beautifully proportioned as to body, and handsome as to features, the enemy were of heavy, unwieldy build, unduly long arms, and their bestial faces were covered with short bristly black hair.

Their long arms, crouching walk and hairy over-muscled bodies and faces resembled the larger simians of our own world.

Both races, however, wore only loincloths, and neither had any weapon.

A veritable battle of angels and devils.

The enemy had formed into a great semi-circle, with the ends directed against the Alanians. The latter, on the other hand, advanced in the form of a capital "V", the apex of which pointed at the center of the enemy semi-circle.

The man of science and I watched in fascinated suspense and expectation their manner of battle.

Gradually the Pluonians drew closer, the mirrors in our hands revealed their ferocious visages distinctly, while their wild chant in all its bestial hoarseness and savagery was carried to our ears by the light wind. Ever faster their gait became as they advanced, until at last they broke into a trot.

We could now observe that at the center of their formation their ranks were tripled, thinning down gradually toward the horns of the semi-circle.

Our friends the Alanians had stopped, and were grimly awaiting the attackers with apparent placidity, leaning slightly forward with all the muscles of their splendid bodies tense.

I thrilled at their heroic composure, and a glance at my companion showed that he was no less impressed.

The chanting of the Pluonians had ceased. They were coming on at top speed. The impact of the two armies was terrible: A dull roaring crunching noise that sent the shivers up and down my back. But the apex of the Alanian "V" had penetrated the black semicircle.

And then followed the most fantastic battle—if such it could be called—that it is possible to imagine.

Almost perfect silence reigned. There was no wrestling, beating or slugging. That is what made it so indescribably unreal to our terrestrial minds.

This is what occurred:

A black warrior would spring like a tiger upon a white warrior; or a white upon a black. They would grapple, and then seemingly become motionless in each other's fierce embrace. Only the quivering muscles on the great bodies indicated the terrific strain of the combatants.

They stood there, motionless like some sculptured work of art, apparently doing nothing more than gazing intently into each other's eyes until at last either one or the other would release his hold and slip lifeless to the ground.

It was uncanny! I could not understand it. And yet I knew there was some terrific force in action there on the battlefield. What was it?

Then suddenly I remembered the words of Loalio the wise. The same thought must have struck Professor Winter also, for almost simultaneously we turned to the old man for an explanation.

The man of wisdom watched the strange conflict with stern eyes. Seeming to read our thoughts, and without removing his gaze from the field of battle, he explained:

"You see there the mighty powers of one mind pitted against the powers of another. It is the force of the concentrated, intelligently directed will that decides the issue."

"Will power, directed in a certain way, becomes more deadly than the knife or other weapon of your world. Many generations ago, as the ancient records show, a man on our plane also used the generally accepted weapons to carry on war. But long ago the race on this plane have relinquished the use of them."

"The warrior possessed of the stronger will-power

is able to overcome an opponent, just as the physically stronger man overcomes the weaker."

"First the functions of the intellectual, or great brain are stopped, and thus the channels of communication between the outer world and the soul, by means of its five physical senses, are closed. Next the barriers of the middle brain are broken down and thus the muscular action of the body is paralyzed.

"Finally, the lower brain is overcome by the downward sweep of the force which radiates from the mental battery of the opponent, and thus the nerve system is under his control. The heart action is arrested at the will of the conqueror, and immediate death is the result."

He stopped and regarded us seriously, to see if we had understood.

Professor Winter, whose eyes were aflame with scientific interest, nodded understandingly. But I shook my head in helpless confusion. Whereupon he explained:

"As far as I can gather, the process of this strange unheard-of warfare is a sort of super-hypnotism! No doubt you have read about the mesmeric and the hypnotic processes?"

I nodded affirmatively.

"Very well; there seems to be this difference: The mesmerist, or the hypnotist, on your plane finds it impossible to influence his subjects without their cooperation, willingly given, or by rendering them passive by a soporific. A person in the full and conscious possession of an active will cannot be hypnotized nor mesmerized.

"Here, however, we have a very active, especially trained will confronting the would-be dominator. Here is no passive state, or cooperation of any sort. On the contrary, here is a very intensively active will, itself intent upon conquest.

"All the tremendous powers of each mind are simultaneously concentrated in the effort of overcoming the resistance of the other, and we see strong powerful men succumb to the superior powers of their opponents.

"Therefore we have here an entirely different, and infinitely more powerful form of mental concentration and dominion than known on our own plane; no doubt subject to different laws of nature entirely."

The explanation given by the man of science, corroborated by Loalio who had listened attentively, was enlightening. I marveled at the tremendous possibilities of the thing. A person killed merely by the concentrated merciless will power of another. It was terrible!

We turned our attention again to the scene of conflict, and noted to our joy that the whites were unmistakably gaining. A great many more black warriors than white were lying on the ground.

Slowly but surely the Alanian apex pushed farther through the center of the enemy. The great "V" stretched itself out, and its wings gradually curled about the ends of the Pluonian semi-circle.

SUDDENLY Loalio grasped my arm and pointed. His eyes were shining with interest, and anticipatory triumph.

At the very center of the two opposed forces two gigantic figures were swaying in the terrible embrace of death; one white and one black. Quickly the professor and I focussed our mirrors upon the pair. One of them was Eloli, Ruler of the Alanians; the other Uruom, King of the Pluonians.

Chest to chest they stood; the brilliantly blue orbs of Eloli burning into the black, redly flaming eyes of the hideous bestial-faced black Ruler; their terrible wills in inconceivably intense action.

It seemed like a decisive conflict between the forces of light and darkness, good and evil, angel and demon.

Which of the two would win that battle of terrible psychic forces?

A slight, scarcely detectable swaying of the two great bodies was the only motion, the only visible sign of their mutual efforts, physically and psychically.

Watching them, my muscles involuntarily became tense, and my breath came in gasps out of sheer sympathy with the great white Ruler.

Owing to the lack of motion, the battle was more exciting than a wrestling match or a fistic contest could have been, because of the great tension, which one instinctively knew existed between the two foes. Such a state of things could not possibly last long.

And indeed it did not.

Slowly, very slowly the pure dominating power of the white king, fighting for justice and right, prevailed over the power of evil in the black king.

Realizing his waning power Uruom made a desperate effort to withdraw his gaze from the blazing relentless sapphire eyes of Eloli, leaning his head far, far backwards. But fight as he would, with all the mental power at his command, he could not check the gradual domination of his cranial functions. The mental power of Eloli seemed like a keen sword which cut off his sensory channels one by one from the outer world.

Presently his muscles became inactive; and finally the dread power swept downward into his primary brain, dominating the nerve system. Then the end came soon.

Suddenly his head dropped to one side, showing the glazed sightless eyes. The great dark body shuddered convulsively and slipped out of the arms of Eloli to the ground. Uruom was dead.

A great cry of rage and fear went up from the black warriors as they realized that, with the death of their king, the battle was lost for them.

A greater shout of triumph sounded from the lips of the white warriors.

From the dark forest beyond a great blare, as from an immense horn, sounded. Immediately each Pluonian who was able to do so tore himself from the embrace of his white adversary and fled toward the forest. But many were taken as prisoners.

The battle was over. Behind us Loalio raised both hands to heaven and gave silent thanks to the great Ruler of the universe. Reverently, with bowed heads, the professor and I waited until he had finished. Presently he led us down the stair and into the palace garden again, and we walked toward the great portal of the auditorium.

Standing in regal grandeur on the throne platform, just at the edge of the top step, Loalio, man of wisdom, awaited the triumphal procession that approached the throne. The noble lines of his face expressed sublime happiness and benevolence.

The procession approached along the wide center aisle, singing a grand paean of joy. First came

Eloli whose left arm encircled the waist of Ealara, his sister. Next followed Alam, the chief of the army; then a group of his officers, and behind them came the warriors, accompanied by their wives, sweethearts and other relatives.

The whole thing, viewed by the professor and me, at either side and a little distance behind Loalio, was indescribably thrilling.

At the foot of the throne, the two Rulers stopped, and the song ceased. Loalio raised his arms and held out his hands over them in blessing. With inclined heads, and in the vast silence, they listened, as in deep melodious tones, the voice of the wise man rolled out in thanksgiving.

The ceremony over, the happy people filed out of the great auditorium; while I and Professor Winter hastened to express our felicitations to Eloli. With Loalio leading, we passed from the throne room into a magnificent banquet hall. Behind us, Alam, chief of the army, and four of his officers, followed at a respectful distance.

The vast apartment was at least one hundred feet long, about half as wide, and as nearly as I could judge, thirty feet high.

There was little furniture, but the decorations on the walls and ceiling gave eloquent proof of the high artistic ability of the Alanians. On the ceiling, gamboling children, exquisitely carved, and painted in lifelike colors, were chasing birds of brilliant plumage.

WE passed on to the very center of the room where a massive oval table, covered with a pure white damask-like cloth, was laid for ten persons, and beautifully adorned with flowers in original artistic designs. Before each place was a large golden plate, and one of the exquisite, delicate goblets we had already seen in the garden. No knives, forks or other tableware were visible.

Behind each one of the ivory-like finely carved chairs was stationed a beautiful servant girl, who, at our approach, pulled back the chairs for us.

Loalio had passed to the head of the table. While we stood there at our appointed places, he first raised his hands heavenward in a gesture of supplication, and then he spread them over the table in blessing.

The simple ceremony over, we seated ourselves.

Immediately, from a curtained alcove, there sounded delightful, soft music, evidently from string instruments. And at almost the same time the beautiful servants began to bring us fruits, and a sort of delicious wafer that literally melted on the tongue, with the same sort of invigorating drink that had been served to us earlier in the garden.

The fruits, some of which resembled our kinds on the earth-plane, were delicious. There were no hot foods, nor meats of any kind. Evidently the Alanians were thorough vegetarians.

And in one other respect the meal was quite different from any similar function in our own world: There was no conversation during the meal. The badinage, repartee and social chit-chat that we know would have been decidedly out of place among such ideal surroundings.

However, there was not the slightest indication of stiffness of any sort. Instead, it was with a very decided feeling of comfort and well-being that the meal progressed.

At the professor's side Eloli, the ruler, ate his fruit with quiet serenity, while at my left Ealara delighted me with her nearness. Evidently Professor Winter and I had been given the places of honor.

At a sign from Loalio, the music ceased. He turned to us with a smile, and said, "Friends, I am ready now to answer the questions which I see in your minds!"

The scientist's face became eager at once. He waved his hand about the vast apartment. "I greatly desire to know by what method and process it was possible to carve such a wonderful dwelling out of the living rock. Do you also use explosives as we, the earth dwellers do?"

The wise man did not understand the professor's term, "explosives," whereupon the latter proceeded to explain as best he could.

When my companion adventurer had finished, the former sat silent a few moments in thought. Then he gave a quiet command to one of the maidens, who departed quickly, and a few minutes later ushered in four strong men who between them, in a sort of sling, carried a great block of stone which they placed upon a small round but strong table that one of the servants had pushed between the professor and the wise man.

When the carriers had departed, Loalio reached forth his right hand and touched his index finger to the stone block. His face was quite calm, but from his eyes seemed to radiate terrific power. And even as I watched in amazement, the stone changed its form.

It seemed to grow larger and a mistiness seemed to surround it. Then, when the mistiness had disappeared, I gazed in utter stupefaction upon the perfect sculptured likeness of my friend, Professor Winter. The whole process had not taken more than two or three minutes. It was unbelievable; and I rose and touched the stone bust to make certain that it was not an optical illusion.

The others had watched me in amusement. As for my companion, he was the intensely interested scientist. Immediately he turned to Loalio for an explanation of the phenomena.

With a grave smile the wise man complied.

"As you probably know, there exist four life elements in Nature, the electro-magnetic, the vito-chemical, the spiritual, and the soul element."

Professor Winter nodded and his eyes gleamed with interest.

Loalio continued: "The first of these elements controls the mineral world; the first and second combined the plant world; the first, second and the spiritual element combine in the animal, and all four of the elements compose the human entity.

"What I have done with this stone is simply due to my control of the electro-magnetic element. It is just as easy to disintegrate the rock in the same manner. Watch!"

Again he stretched out his hand toward the stone. Quickly a cloud of mist formed about it, becoming thicker and thicker, until it formed a sort of cloud about ten times the original size of the stone. Slowly it lifted from the table and gently floated to the floor. Quickly the cloud phenomenon sank down, thinned and disappeared, leaving on the floor an area of about one square yard, covered with thick white dust—the composing particles of what had been a huge stone.

WHILE I stared at Loalio in awe, the professor rose quickly, walked over to the disintegrated stone dust and rubbed some of it through his fingers. He nodded, satisfied, and explained to me: "This powder is finer than the best mill could possibly grind it. The reason is that the stone has been disintegrated and separated into individual molecules."

"But how?" I was utterly bewildered.

Regretfully, he shook his head. "That I do not know; but—" here he bowed respectfully to the wise man "—some day I hope to learn the method."

Loalio nodded gravely. "It is possible, my friend; but the attainment of control over Nature's forces requires many years of intense study, perseverance, and practice. Very few attain this power; for to most people it is too difficult a problem to solve, requiring as it does perfect self-control and the living of a life in strict accordance with Nature's Constructive Principle."

He rose from the table and all of us followed his example. While the officers bowed deeply and left the banquet hall to go back to their duties, Loalio led the way into an adjoining chamber which proved to be the music room.

There were several string instruments somewhat resembling the ancient lyres of the Greeks, and some were similar to the large harps on our plane, with the exception that the strings ran horizontally instead of vertically. In the center of the great room stood an instrument which resembled nothing which I had ever seen in our own world.

It was a great tripod, fully seven feet high; the legs, very heavy at the bottom and tapering at the top were composed of a semi-transparent substance like topaz. At the top the legs were fastened to a triangular plate of a white metal, and at the bottom, to a similar but far larger plate. Through the centers of these two plates, and rigidly attached to them, passed a metallic rod; thick at the bottom and gradually tapering to the size of a man's small finger. Ranged on this rod, according to size, one above another, were a great number of triangular metallic plates, beginning large and thick at the bottom of the instrument and ending in small ones of wafer-like thinness at the top.

Ealara, who had led me by the hand, invited me with sweet courtesy to be seated upon one of the comfortable divan-like chairs, and walked to the tripod. With two slender wooden rods, she began to play it.

Instantly the chamber was filled with exquisite tones of perfect harmony, a strange melody, arousing all that was good and poetic in my soul. Ealara played with delicate touch and deep feeling, giving forth waves of wonderful symphony, which raised my soul to a condition of veritable bliss.

Even Professor Winter, scientist that he was, seemed spellbound by the music. And Loalio and Eloli sat there in visible deep contented revery as the waves of harmony caressed their ears.

When the beautiful player had finished, both the professor and I hastened to express our enthusiastic appreciation.

Soon the conversation devolved chiefly upon Professor Winter and Loalio. From what the wise man said it appeared that:

There were many nations on the sub-infra plane, most of them white and advanced peoples. The rest, to which the Pluonians belonged, were primitive and dark-skinned.

At the head of each white nation were two chosen Rulers, a man and a woman who ruled jointly. The male Ruler was chosen by the men of the nation, the woman by the female citizens.

They were selected because of their superior wisdom, purity of character, and their true sense of equity, justice and right. Sometimes, as in the case of Eloli and Ealara, it happened that the two Rulers were chosen from the same family.

Every three years a great competition was held at the capital of each nation, at which all the most advanced citizens of both sexes participated. They who excelled in all the intellectual and moral tests were chosen as the next Rulers. Often the present rulers were chosen for a second term.

At each period of nine years the supreme intellectuals from all the white nations, Rulers and others, assembled in the central capital of Orth. There the supreme test was held. Whoever passed it were chosen as the central Rulers for a period of nine years. To them all the other white nations looked for guidance and counsel. The central Rulers were also one man and one woman, with exactly equal powers in their individual spheres of activity.

In case that one of the Rulers should die before the expiration of his term, the next highest intellectual was chosen until the next election.

The paramount duty of the Rulers was the intellectual, spiritual, moral and psychic evolution and progress of their peoples. There was no industry and commerce as we on our plane understand them. The needs of the people were few.

Their climatic conditions, too, differed from ours: it was always mild summer weather. This necessitated few clothes, which, very likely, partially accounted for the complete absence of any sickness. They were all strict vegetarians, and each family grew sufficient fruits and vegetables for its own needs.

Only when something needed to be done for the common good, or for the Rulers, did the whole nation join forces. An inherent sense of duty and love made them see to the needs of each other.

The servant problem was met in the same way. All the servants in the palaces of the Rulers were there voluntarily for a period of one year, unless they desired to stay longer. The only medium of exchange was personal service.

THESE people produced many fine artists and craftsmen. There were no churches. This was a country of monotheists who believed in an invisible, omnipotent and loving Ruler of the universe, whom they worshipped at intervals in the palaces of their Rulers, as we had seen.

Birth was the same as on our plane.

At last death was mentioned. And right here we heard something very strange. It answered the unspoken questions in my mind about the dead left on the battle field. I had not seen any of them brought in, and had seen no preparations for their burial; so I had wondered.

The strange fact that Loalio mentioned in this connection was that the body of a person after death did not decay—it literally evaporated. As soon as the life element was withdrawn from the body at the time of death, the strange chemical process of nature began, until, at the end of about one of our hours, the body had completely disappeared

They believed that after physical death, the soul clothed in a finer body, passed into a finer higher world.

"It is a material world like this" explained Loalio, "but of finer matter, and infinitely higher vibration."

The advanced wise men like Loalio, who was an ex-central Ruler, were of such high spiritual development, that they could communicate with the next world with full consciousness, while still in the physical body and in full possession of their will and voluntary powers.

They believed that the evolution of man is practically an eternal process, that the soul in ever refined bodies ascends from plane to plane until it reaches an ultimate condition of perfection.

One point Loalio made very clear: that it is impossible for the individual soul to find self-completion or perfection alone; in order to reach that high state of being, the perfect vibratory union of a masculine and a feminine soul is absolutely necessary.

As Loalio said: "That is the reason why we devote all of our best energies to the development of the true love nature. We bring up our children by implanting the germ of love deeply into their minds. Not only individual love, but altruism as well.

"We teach them from the very beginning how to control the destructive passions and impulses of their physical natures, and how to re-direct these impulses into constructive channels. It is this which has made possible the abolition of war among the white peoples on our plane."

What a wonderful world we would have if we could reach such a point. No more wars, no more suppression of the peoples by the powerful. No more hatred between classes, for there would be no classes; no more grafting, stealing, murder or other transgressions; no more high taxes to pay for war debts and for armament in preparation of new wars. It would be glorious to see the end of crime, courthouses and jails.

Here Ealara read my thoughts and asked:

"Is it then such a terrible world from which you come? Surely not all the people there are bad. I am sure that both of you are good men! Are there not many such? Are not your women good?"

We assured her that there were more good than bad people in our world, and that our women formed the main moral foundation

And then to my own great astonishment, Professor Winter told them that he had heard of wise men on our plane who lived holy lives and could control the forces of nature; how through their control of nature's forces they could create things, make flowers grow from seeds in a few minutes, and so many more strange things. These wise men were in every country, living secluded lives and pursuing their studies in secret; making every effort for the good of humanity.

Then, to my intense embarrassment, Eloli turned to me with a smile. "It seems, my friend, that you doubt the existence of these holy men and their powers on your own plane!"

And now, gazing from one to the other of the three exalted Alanians, I knew that they had easily read my skeptic attitude of mind, of which I had been but semi-conscious.

I made an apologetic gesture. "I am sorry! But my mind seems to be of a quality which cannot accept as a fact anything that I have not personally experienced or demonstrated."

Eloli asked one of the maids present to place upon the floor before us a golden earth-filled pot and a seed from one of the flowers in pots, which, with their wonderful coloring and perfume served to adorn the fine apartment.

HE turned to me. "Not to entertain, but to instruct you, shall I demonstrate to you that these things are possible." He bowed, with deep respect, in the direction of Loalio. "Our Supreme Exalted Brother has demonstrated to you his control over the electro-magnetic forces of Nature. I, his deeply grateful pupil, shall demonstrate to you that control over the next higher, the vito-chemical element, in combination with the lower, is possible."

His right hand, with the index and second fingers extended, pointed to the seed in the golden plate, while he concentrated upon it with fixed intensity.

And even as we watched intently, a little cloud of luminous mist seemed to surround it, becoming rapidly larger as it rose into a column several feet in height. Gradually within the mist phenomenon the faint tracery of a flower plant appeared.

At first it was very faint, but it rapidly became more and more distinct until, no more than two minutes later, the misty light phenomenon cleared away, and there before us, in all its beauty, covered with a multitude of fresh aromatic blossoms, stood a magnificent flower bush.

I rubbed my eyes and pinched my leg to make sure that it was not an illusion. Then, while our hosts watched me with smiling sympathy, I emulated the example of my fellow-adventurer, who had broken off one of the flowers, and was examining it with intense interest. There was no doubt about its genuineness, but I was not entirely satisfied, so I touched the flower bush with my fingers, and followed it all the way down to where it disappeared into the soil. So hard is it to overcome prejudice and bias. But I was convinced at last.

Marvellous? I could not find adequate terms to express myself. I gazed at Ealara; and then I stared incredulously, for sweetly smiling at me, she was fast becoming invisible, a mere transparent wraith, until, quicker than it takes to tell, she had completely disappeared.

I turned to my other three companions in bewilderment. The professor was staring with scientific analytic interest at the chair which the queen had but recently occupied. I was about to formulate a question, when, following the smiling gaze of the two exalted Alanians, I perceived Ealara seated in her place just as visible as she had been before the experiment, and smiling at me with a warmth that went straight to my heart.

"You seem very much surprised, dear friend."

I was, for never had I imagined the possibility of such miracles.

"And yet—" she said earnestly—"these are nothing but visible demonstrations, showing that the laws of Nature can be used and exercised by those who have developed and unfolded the faculties, capacities and powers of the soul. You and your friends—" her graceful gesture indicated the professor "—can do these things that we have done, if you will but comply with, and live according the constructive laws of Nature."

But it was not the end of wonders yet. Ealara

waved her hand respectfully in the direction of Loalio. "Watch!"

The venerable master rose and with both hands traced an outline in the atmosphere, beginning at the height of his eyes and tracing downward with a stroking motion a number of times.

Gradually a large oval form appeared in the air before him, luminous and tinted with all the colors of the rainbow. Rapidly the oval form became more dense, apparently drawing together and concentrat ing, until the outlines of a human form became visible.

Again I noted the light of intense mental and spiritual power radiating from the eyes of the man of wisdom

And then, even while we two earth dwellers watched in utter fascination, there suddenly stood before us, smiling at us sweetly, the form of a maiden of eighteen summers

To the rhythm of inaudible music she began to dance in the most graceful manner imaginable. Faster and faster she danced, until soon she spun dizzily on one slender toe.

And then, even as she had appeared, she resolved back into the mysterious nothingness from whence the master had called her.

IT was a beautiful rest room to which we had been personally conducted by Eioli and Ealara. The atmosphere within reminded one of the refreshing scent of a pine forest.

In common with all other apartments in the immense edifice, the chamber was very spacious and almost devoid of furniture, other than two very comfortable couches and a table, exquisitely carved from some rare wood. The walls of the room were painted with wondrously artistic realistic designs of trees, flowers and birds that seemed to live.

The peculiar feature in all these chambers of the palace was the lack of windows, or any other exterior openings. Yet the light and ventilation were perfect.

When the two Rulers had embraced us in true brotherly fashion, and bidden us to rest well, the professor and I sat down on our couches and discussed the many strange happenings of the day. And long after I heard his first breath of deep sleep, I was still awake. The day had been too crammed with unbelievable adventures to allow of sleep.

I began to think about the Pluonian prisoners. I had not seen any of them, but Alam, the chief of the Alanian army, had casually mentioned that they were confined somewhere in a subterranean chamber of the palace.

Presently the overwhelming desire to inspect the prisoners took possession of me. Very quietly, so as not to awaken my companion, I rose and left the room.

The passage in which I found myself led to a wide descending stairway. On past the corridor below, in which the banquet hall and music room were located, I went. Just below this corridor the stairway developed into a spiral.

It was strangely still in the palace. Not the slightest sound could be heard, and my footsteps, however lightly I trod, seemed unnaturally loud. No doubt everyone was asleep.

At last I came to another passage, more like a tunnel, far underground. And as I entered it, I experienced a sudden dread, but with angry pride I suppressed the emotion as childish. Boldly I entered the long passage.

Carved out of the solid granite, no doubt with the wonderful magic of Loalio and other wise men, this passage seemed to lead into interminable dim distances, illuminated by the ubiquitous violet radiance. At regular intervals doors on both sides led to unknown regions.

I passed on and suddenly was sensible of the presence of living beings somewhere close by. I was opposite a heavy door of metal. From beyond it harsh, animal-like sounds, guttural and menacing, came to my ears.

I should have turned back then, but the devil of curiosity within me persisted. Cautiously, I placed my hand upon the massive latch and pressed down. With a slight grating sound, the heavy metallic door swung open. The next moment I staggered backward with sudden fear.

For there, from behind the grating of thick metallic bars, the face of a green-eyed devil stared out at me, terrible, repulsive; a Pluonian prisoner.

Ashamed of my temporary fear, I summoned all the courage at my command and faced the ape-like hairy savage, beyond whose body I could see the forms of others of his kind—grinning, ferocious, animal-men.

A voice of warning within my consciousness bade me slam the outer door and go back to my couch above. But I would not listen.

The flaming green eyes of the Pluonian at the grating attracted my gaze with the force of a magnet attracting iron particles. I felt a rapidly increasing numbness in my brain, my senses began to reel. In a flash it came over me that the savage was exerting his terrible volitionary force to overcome me. With all my remaining will-power I struggled desperately to resist the dread influence sweeping over me.

But it was of no avail. I felt myself slipping rapidly. And then, like a white-hot bullet into my brain, came the mental command of the Pluonian: "Open the grating!"

Dimly I realized that I must not yield, must not carry out that command. But seemingly without my volition my body responded. Like an automaton I raised the heavy bar of metal that closed the grating from the outside.

Suddenly I felt myself flung aside with resistless force, as evil-smelling bodies rushed past me, hairy, horrible. I had the sensation of being picked up—then blackness descended upon my mind.

WITH the sensation of regular rhythmic motion, consciousness came back to me. I was lying across the shoulders of a huge Pluonian, bound hand and foot, who carried me without apparent effort. All about me was the guttural growling, and the soft tramping of many bare-footed men. We were passing through dense primeval forests. Through occasional openings in the heavy foliage far overhead I glimpsed the rosy sky, and knew that it was early morning.

And then, as from my recumbent position I gazed about cautiously, I saw that which turned my heart and soul sick with horror For there, just a few feet ahead of me two of the savages carried a sort of hammock which depended from the strong long pole on their heavily muscled shoulders, and from that hammock protruded an arm of ivory whiteness, most

beautifully modelled, and a long slender hand that I would know anywhere.

THE WOMAN IN THE HAMMOCK WAS EALARA!

Ealara the beautiful, a prisoner of the semi-human savage Pluonians! God! What had I done! Bitterly I regretted my damnable curiosity. But right there and then I resolved to save Ealara no matter what the cost.

The cords on my wrists and ankles hurt terribly, but that pain was as nothing compared to the torment in my soul. No doubt she was asleep when the savages had attacked her; because as Eloli had explained to us, psychical dominion through the power of will is far easier during sleep, for then there is no active will to overcome. Perhaps it had been the very savage who had dominated me, and had induced me to open the prison, who had overcome her. He was unquestionably a leader among the Pluonians, and therefore more powerful mentally than the others.

Hours passed, and still the steady tireless march of the animal-men continued. And ever my gaze returned to that white, beautiful arm protruding from the portable hammock ahead of me, swinging like a pendulum, lifelessly, until I thought that I should go insane.

From the occasional glimpses upward through the dense foliage I knew that it was broad daylight. And yet, in the depths of that strange, dense primeval forest, a sort of perpetual twilight prevailed.

Despite my soul torment I must have fallen into a doze, from which I awakened as we neared our destination. From ahead, savage guttural cries and piercing yells assailed my ears.

Presently we entered a clearing, at the foot of a high black cliff wall, along the base of which I perceived a number of irregular openings, the largest being near the middle.

In a moment we were surrounded by a great mob of nude savage children of all ages, and sullen semi-nude Pluonian women, who stared at me fiercely, though there was something akin to awe in their touch of my clothes.

The huge savage who had carried me tossed me to the ground like a sack of meal. The impact jarred every bone in my body, but it cleared my head and quickened my brain. Disregarding the mob of savages crowding about me, I exerted myself tremendously and managed to sit up. Thus I was just in time to see the hammock, with Ealara, being carried into the largest cave opening.

"Dear God!—" I prayed in my heart, "—help me to remedy the evil I have done; aid me to free Ealara!"

I was lying, or rather sitting upon a white crystalline ledge of rock that somewhat seemed familiar to me. I allowed myself to sink down again, twisted about, and touched my tongue to it experimentally. As I had guessed, it was pottassium nitrate; but of such purity as I had never seen on the earth plane.

At this moment the savage who had carried me, returned, roughly pushed the crowd of women and children aside, and cut the bonds from my ankles with a short stone knife which he carried. He jerked me brutally to my feet and pushed me ahead of him toward the main cave.

Several feet within the entrance a great double curtain of very heavy cloth obstructed our progress. My guard parted the curtains at the middle and pushed me through, following at my heels.

Involuntarily I recoiled, stepping hard on the toes of the Pluonian behind me, who emitted an animal-like yell, for the intense red luminosity of the place seemed to me for a moment a conflagration.

The immense cave had been hollowed out by the hand of Nature, and only in a few places was there any sign of the touch of man. The walls had been tinted with a luminous, bright-red substance as far up as the eye could see, and this was accentuated a thousandfold by hundreds of fiercely burning torches that threw an intense red glare. Everywhere, on the walls and in tall metallic holders, the red torches hissed and spluttered and glared, illuminating a scene truly infernal, hellish.

WITH a fierce growl, my guide pushed me forward violently, so that I almost fell. And now, as I walked forward totteringly, I became conscious of other things in that vast cavern —

A large crowd of Pluonian warriors were assembled about a great throne of a yellow, dully gleaming substance, shaped like a huge square block, upon which sat a powerfully built savage, cross-legged. With the exception of a broad breechcloth of shiny cloth and fiery red color, and a sort of turban of the same material, he was nude.

Behind the throne, sculptured out of black stone, its large, fiery eyes of a substance akin to ruby, squatted a gigantic idol, staring straight ahead with terror-inspiring intensity, its triangular tongue of crimson protruding several inches from the horrible gash of a mouth, its unspeakably hideous face grinning, grinning—a veritable nightmare.

Just below the throne was a wide stone platform, and on this my searching eyes perceived the motionless white figure of a woman. "Ealara!" I cried and attempted to rush forward.

But with a crushing grip, my guide grasped my shoulder and flung me to my knees. "Down, worm!" he bellowed. "You are in the presence of Turum, son of Uruom that was, King of Pluonia!"

Timidly I raised my gaze to the bestial, sinister presence above me and met the brooding, fixed stare of his flaming, reddish eyes, the menace and evil in which caused quivers of terror to travel up and down my spine.

With a tremendous effort of will, I managed to remove my gaze from the terrible fascination of the flaming eyes, and again contemplated the inert form of the white queen on the platform.

My heart turned sick within me at my absolute helplessness. She seemed dead; and only by means of concentrated attention, could I discern the almost imperceptible rising and falling of her bosom.

Suddenly I was conscious of a deep, rolling, thunderous voice above me. Turum was speaking to the assembly of savages who pressed all about me, nauseating me with the odor from their filthy, hairy bodies.

"Warriors!" he began. "To-night, Pluo, the great spirit of our race, commands that I be crowned king in the stead of my father, who is no more!"

He paused, and his glittering gaze fixed itself upon the body of Ealara, greedily, rapaciously, obscenely. He pointed to her, and his evil, fiery eyes challenged his creatures as if he expected opposition. "At the celebration, she shall become my slave! And

he—" pointing to me, "shall be sacrificed in the fire to Pluo! I have spoken."

His great, hairy fist crashed down upon a sort of drum that stood by his side, and his challenging stare swept once more over his warriors. "Let him who objects speak!"

But thunderous semi-animal like shouts of approval burst from a thousand savage throats as the warriors slapped themselves upon their hairy chests with a terrifying noise for emphasis.

Amidst savage laughter, my guide jerked me brutally to my feet and dragged me into a sort of grotto, immediately adjoining the central cave, where he flung me to the rocky floor, cut the remaining bonds on my wrists, and left the place.

For a long time I remained where I had fallen, too miserable to move; my heart burned within me with the terrible realization of the extent of the evil I had committed out of curiosity, and my absolute helplessness to remedy matters. I loved Ealara! Loved her with every fibre of my being; and the thought of doom filled me with utter despair.

I sank to my knees, and prayed with an intensity that I somehow felt would bring results. With a new hope and renewed strength I rose to my feet, just as one of the Pluonians entered with a huge platter of food, and a stone pitcher of some liquid. He placed the food upon a block of the same yellow substance of which the throne in the main cave was composed, grinned at me evilly, and walked out.

With a sudden realization of my hunger, I attacked the food. It was evidently broiled venison, accompanied by a sort of thick, white, roasted root, that in taste resembled a potato. At first I ate rather reluctantly, but when I found the food surprisingly palatable, I literally gorged myself, washing it down with an occasional draught of water.

While I was eating I noted that the stony block which served me as table and chair simultaneously rocked back and forth with my movements. Glancing down, I observed that small pieces had been broken off from its lower edge from contact with the harder stone floor of the grotto. Casually I picked up one of the particles and examined it. There could be no mistake—it was native sulphur of great purity.

And suddenly as I was staring at the sulphur in my hand there entered into my mind a plan of escape that left me fairly gasping with excitement, for in a flash I remembered the potassium nitrate outside, which in combination, would give gunpowder. If I could obtain some of the nitrate, and charcoal——

In college, I had been fairly good at chemistry and had been quite successful with my experiments. I remembered the formula for gunpowder distinctly. I stealthily crept toward the entrance of the grotto, which was connected with the central cave by means of a sort of tunnel in the shape of an irregular capital L; the short part being toward the grotto. Cautiously, I peered around the turn. Just inside of the outer opening, so that he could see what was going on in the main cave, a huge, bestial Pluonian stood guard.

His back was toward me. Silently I crept back into the grotto. With a dim hope, I began a tour of exploration. The grotto was very irregular, formed from the black cliff of evident volcanic origin, with many ramifications. It seemed discouraging, just as I was about to give up hope, my diligent search was amply rewarded, for in the narrowest of these branches of the grotto, I came upon a fine outcrop of the nitrate.

With the aid of my dinner knife, I managed to break off a large quantity of the mineral and carried it to a dish-like cavity in the stone floor, which acted as my mortar. In a few moments, I had found an oblong piece of rock that was suited for a pestle. Feverishly, I set to work grinding the nitrate to a fine powder.

DURING my grinding operation, I began to devise ways and means for obtaining the requisite amount of charcoal. At one side of the grotto was a sort of heavy mat, woven from grasses. No doubt this was to be my bed. I concentrated upon this mat, determined that it should furnish me with the necessary amount of charcoal. There were two flaming red torches against the walls of the grotto. At intervals, glowing pieces dropped from them to the floor, where they remained in a glowing state for quite a while. Quickly I walked over and pulled the mat squarely under one of the torches.

How many hours I worked, I do not know, for I lost all sense of time. But I now had many pounds of powdered nitrate and sulphur, and through careful manipulation, nearly the entire upper side of the straw mat was reduced to charcoal.

I was completely exhausted. Wearily, I dragged myself to the mat, turned it over so that the charred surface was under me, and stretched out on it to rest a little. When I awoke with a start hours later, I found that another meal had been served me while I slept.

I ate voraciously, and as soon as I had finished my meal, I began the milling operation again. Several times I crept to the turn in the passage to spy upon my guard and found that at intervals of several hours new men were at the post. Evidently they were certain I could not escape, for not once did anyone enter the grotto to see what I was doing. I praised heaven for that.

Suddenly a weird feeling came over me, as if an unseen presence were approaching. And even as I stared incredulously before me, there formed a tall, oval fog-like phenomenon, growing more luminous every minute. I sprang to my feet and retreated in alarm. And then, as I watched in amazement, there quickly materialized before me, out of thin air—Loalio.

He smiled benignly and extended his hands toward me in a tranquilizing gesture. "Fear not, my friend! I have come to aid you." He pointed to himself. "As you no doubt understand, this is not my physical body, even as yours is not. As master of the laws of nature, I am able to leave my physical body whenever I choose, and can travel to any distance and there clothe myself in a temporary body, composed of electro-magnetic and vito-chemical substance, which is everywhere."

I marveled. What wonders were possible to the soul of man! Then I quickly acquainted Loalio with the vital facts of the case, and showed him the half finished gun-powder. He smiled gravely and gently shook his head. "There is no need for that. There are greater forces than chemicals that are changed into gases through fire or percussion."

He walked over to me and touched my forehead. Immediately I seemed to expand all over my body,

and experienced a far greater buoyancy than any I had yet possessed. I glanced down at my body, and with a shock realized that I was again invisible, as on the day before, when Professor Winter and I had entered into this strange world. But in a few moments my vision had become adjusted to the higher vibration of my body and I could again see both my own body and that of Loalio, who had again made himself invisible to ordinary vision.

With a sign, he invited me to follow him. We passed right by the guard of the grotto unnoticed.

It was no doubt evening when we entered the main cave, like two invisible spirits.

Turum was being entertained. At the foot of the sulphur throne a large crimson cloth had been spread on the stone floor, and the most conspicuous thing on this improvised table was an immense wooden platter, placed in the very center, in which lay an entire huge ox-like animal, evidently freshly roasted, for it was smoking hot.

At each end the great roast was flanked by smaller platters containing smaller roasts, and there were still other huge dishes containing heaps of the thick white boiled root that I myself had eaten; and there were many other unknown edibles in great quantities. Great jugs of stone contained liquid refreshment.

In the middle of the spread, with his back toward the throne, Turum presided. At each side of him and surrounding the cloth, his warrior chiefs were enjoying themselves; everywhere about the immense chamber similar but simpler spreads were placed for the rest of the warriors—at least two thousand.

Table manners were evidently unknown, for they were feeding like a pack of hungry wolves. Their method was simple. The warriors grasped a convenient corner of the roast in front of them with one hand, while with the stone knife in the other they hacked off whatever they deemed immediately necessary.

And while the meal was in progress there was music and dancing. And such music! And such dancing! Seated cross-legged, crouching like great simians, and in various recumbent positions, the bestial warriors fed and watched the show.

At one side, to the right of Tarum, was a high stone platform, and on this, accompanied by a horrible discordant blatant noise which could hardly be called music, were seven men and seven women, swaying, whirling and gyrating in a series of motions and postures that were vile and obscene.

The orchestra, composed of reed pipes, great animal horns, and various kinds of drums, was seated at one edge of the platform. If anyone can imagine the combined noise and barbaric discord of a large Chinese orchestra, a dozen Scotch bagpipes completely out of tune, and a few African tom-toms, he can about imagine the effect.

The whole scene, the musicians, the glistening hairy bodies of the dancers, the feeding warriors, the guttural deep ape-like tones of approval and shouts of delight, and the crimson bright light tinging everything with a blood-red color, might well have represented a part of the infernal regions.

That horrible crowd resembled the legendary demons of hell, as no other creatures could have done.

Only a few minutes we stood there contemplating the nauseating spectacle. Then my venerated companion touched my arm and pointed to the throne of sulphur behind the savage king.

I looked and my heart leaped. For there upon the great block of sulphur, bedded on shining crimson cloth which vividly accentuated her angelic whiteness, I saw the object of my adoration and love—Ealara.

UNSEEN and unheard by the savages we quickly approached the throne, and bent over her with anxious concern. Apparently she was still in the grip of the hellish power which during her sleep had robbed her of her consciousness and self-control.

With a shudder I realized that she would be held thus until she had become the plaything of Turum that very night. Loalio bent down and touched her forehead with the tips of his fingers of his right hand. With great joy I soon realized that he rendered her physical body invisible to the savages. Both he and I, however, could see her spiritual body, just as we were able to see each other.

And even as I picked my love up in my arms at the command of the wise man and carried her toward the entrance, a great shout went up from the Pluonians. They had suddenly discovered that their fair prisoner was missing from the throne.

In a moment the place was in an uproar, an inferno of sound.

Agitated and driven on by the terrible booming of Turum's voice, a frantic search was begun, extending to every nook and corner of the vast cavern. Torches were torn from their fastenings in order to facilitate the hunt for the missing royal prisoner.

And through it all, serene in our invisible condition, Loalio and I quickly made our way to the screened entrance. We had barely reached it when a sudden thought evidently struck Turum, that in some unaccountable manner the royal fugitive might have made her way out of the main entrance, for his bellow directed the searchers in that direction, himself leading.

Loalio suddenly raised his arms upward with a waving motion. For a moment there was a terrific atmospheric tension. Then, when the savages were within a few yards of the entrance, a sudden avalanche of rock descended upon them with a terrific roar, burying them from our sight. A wild horrible yell from a thousand savage throats, and then—silence

As we stepped out into the open, the venerable master touched the rock at the side of the entrance. Again I witnessed the phenomenon of rock changing into a cloud of floating molecules, light as breath. The cloud phenomenon, now luminous, covered the entire entrance. Quickly it grew more dense, and when the luminosity disappeared, I stared in awe.

Where a couple of minutes before had been a great opening, a solid smooth wall of hard impenetrable rock confronted us.

From the many smaller caves a multitude of older men, women and children emerged, streaming toward the former opening to the central cave. And even as we, invisible to them, moved away, the air was filled and made hideous by their piercing animal cries and shrieks of astonishment, fear and hatred when they saw the solid rock closing up the former entrance and simply realized perhaps that something strange and terrible had entombed their king and his warriors.

Loalio gazed at them a few moments and his

face was stern as he spoke: "It was a terrible thing to do, but I had no choice in the matter. They would have declared war against Alania at once, and perhaps thousands of innocent people would have had to suffer.

I was still carrying my unconscious love in my arms, and was wondering if Loalio would awaken her from her trance before we continued on our way, when he stopped and looked at me. "Fear not what you are about to experience, but trust me utterly!"

Without hesitation, I nodded in acquiescence. He placed his right arm firmly about my shoulders, and again his face assumed the fixed intent expression of intense concentrated mental power.

The next moment I felt myself rising high into the air, and traveling with inconceivable speed.

According to terrestrial time the phenomenon endured barely more than a minute or two. I distinctly got the impression of dark forests, open spaces and rivers receding beneath me in a blurred, lightning-like procession, but was not conscious of wind or impact against the air. And then—suddenly, I felt solid ground beneath my feet. I landed softly as down once more in the garden of the palace of Alania.

Elolio and Professor Winter evidently had expected our coming, and greeted us with sincere delight. They wanted to relieve me of my precious burden, but I insisted on carrying Ealara myself into her own simple chamber of rest, where Loalio broke the evil power which had held her in its grip

Suddenly she opened her wonderful eyes, and gazed in bewilderment, first at me and then at the others. A smile transformed her face into transcendent beauty as she raised herself to a sitting posture.

"What has happened? Why are all of you acting so strangely?" she inquired. Evidently she remembered nothing.

And then it was that I sank to my knees, and with humbly bowed head, told of my curiosity and its fatal consequences, and begged her pardon for my contemptible lack of self-control

Softly she placed her hands upon my bowed head, and her voice was like the sweetest music in my ears. "My dear, dear friend; it was but a passing weakness on your part. Who am I to condemn you for it?"

When at last I dared to raise my head and gaze timidly into her eyes, I saw such a light of tenderness and love radiate from her eyes, that I forgot everything but my great love for her; and on the crest of the tidal wave of my emotion, I swept her, a very willing prisoner, into my arms. Only then did I realize that the others had left us to ourselves.

Never had I imagined such rapture and deliciousness as I experienced in those never-to-be-forgotten moments. . . .

At last I knew, as an eternal truth, that which the wise men of humanity, the masters of the law, have thought for ages: that complete happiness can be attained only when two perfectly attuned souls of the opposite sex meet and are united by a bond everlasting; a bond that a thousand deaths could not break; a union indissoluble and eternal. At last I had found my soul-mate.

How long we were there in that embrace of utter bliss, I do not know—it might have been minutes, it might have been hours, days or eons. Then suddenly an unutterable darkness descended upon my mind, and I had the sensation of falling, falling through a limitless void; I seemed to hear the cry of my love's fear from an infinite distance, and then—oblivion.

"BARTON! Barton! For God's sake answer me!"

The words seemed to come from a vast distance, and I became dimly aware that someone was shaking me violently. With all my power of will I struggled to throw off the lethargic leaden heaviness that enthralled me soul and body.

With a tremendous effort I finally managed to open my eyes to see the anxious face of Professor Winter bending over me. With his help, I managed to sit up, and stared about me in a daze.

With a shock it suddenly came to me that we were in the scientist's library. I had been lying on the floor in front of the great mechanical chair from which I had started on my strange voyage to the land below the infra-red, from which I had evidently fallen to the floor.

On the other side of me, supporting me with trembling hands, was Summer, the old factotum of the professor, whose staring eyes and pale face indicated that he had passed through an experience of intense fear.

What had happened? In some unaccountable manner we had been suddenly re-transferred from the delightful land of Alania to our own drab and prosaic world.

"Thank God that you are all right!" exclaimed my friend fervently as he drew a deep breath of relief. "For a minute I was terribly afraid that your cardiac action had stopped," he added.

"What—what on earth has happened?" I stammered feebly, while they helped me to a comfortable chair. I was still very much confused mentally because of the sudden change.

The scientist seated himself at my side and explained gently: "You see—there was a severe electrical storm. The lightning struck one of the main transmission lines and burned out several of the primary transformers at the nearest sub-station.

"Naturally this put the whole station out of business, with the result that all the current was cut off, and the apparatus here stopped." He pointed to the silent machinery on the two tables and continued:

"As the machines slowed down, the vibrations of our physical bodies in the chairs here decreased in proportion, and came back gradually to normal, which variation in turn was transmitted to our spiritual bodies on the sub-infra-red plane by means of the invisible cord of magnetism which ever connects the physical and spiritual bodies until death itself disrupts it.

"Now then, of course the more normal our vibrations became, the more we withdrew from the other plane of existence, and the closer we approached our terrestrial plane again. The attraction between the physical and spiritual bodies increased gradually until the soul, encased in its spiritual body, entered into its earthly shell again, and—here we are"

I nodded in slow, sad comprehension "And so we are back again in the hum drum existence of our own dreary world." With a sudden mental wave

of misery I buried my face in my hands and groaned aloud with disappointment. "And just as Ealara, my wonderful soul-mate and I——" My voice broke and I could not finish.

My companion placed a gentle comforting hand upon my shoulder. "Dear friend," he began, with the deep, full tone of genuine sympathy in his voice. "I understand! But I promise you, upon my honor, that as soon as I have prepared a paper for the Society of Psychical Research, covering our experiences upon the plane of the sub infra-red in detail, we shall again venture into the delightful land of the Alanians, our wonderful and wise friends."

With renewed hope in my heart at the thought that I would soon be with Ealara again, I went home. Strange how heavy and uncouth my physical body felt after the delightful lightness and buoyancy of my spiritual body, encased in its covering of sub-infra-red matter!

At an early hour the next day, my telephone rang wildly. I was still in bed. Sleepily I lifted the receiver. Summer was on the wire, his voice quivering and trembling with deep emotion and grief.

"Mister Barton, please come at once! Professor Winter is dying!"

I was awake in an instant. "Did I understand you to say that my friend was dying?" I cried horrified.

"Yes, sir, it is true; Doctor Evans is with him now!"

In a voice choking with emotion I promised to come at once. With lightning speed I began to dress.

I could not bring myself to believe what I had heard. When I had left my friend the day before, he had seemed to be at the maximum of health, strength and energy, mentally and physically, enthusiastic at the prospect of preparing the papers of our adventures for the Society of Psychical Research and now——

Summers, who was visibly agitated, led me straight to the professor's bed-room. Doctor Evans, an elderly and highly capable physician, the life-long friend of Professor Winter, was seated at his bedside when I entered.

My scientific friend gazed up at me with a brave smile as I leaned over him and silently took his hand.

"Well——" he began, in a faint voice, "——it seems that the old heart was not able to stand the strain after all. The attack came suddenly, about two hours ago. I had been up all night, arranging notes for my manuscript."

He indicated the doctor with a feeble gesture, and his lips twitched humorously. "Frank here says it's extreme valvular endocarditis. I suggested putting in new valves as you would into an automobile, but he did not seem willing. So I suppose it means that the old heart is going to stop soon."

Appalled, I stared at the doctor, who answered my mute question with a sad nod of his head. "I have done all I could; I warned him some time ago, but he would not listen."

The dying man spoke to me again, but his voice was much feebler, and there was earnest, deep appeal in his eyes as I bent down to hear his last words.

"Barton, before I pass on to the higher world to continue my studies of the mysteries of nature, I want your promise to do me a very great favor."

I nodded with ready acquiescence. "Certainly! Gladly."

He smiled with relief. But I had to bend close to his mouth to hear. "Then, since I cannot do it myself, will you promise to acquaint humanity with our experiences in your own way?"

I nodded silently, and gave him my hand to emphasize my promise. I felt his feeble, grateful grip. And a few minutes later, still retaining his grip on my hand, his great fine soul passed out from its terrestrial shell, to enter upon his greater, finer, and more lofty labors and duties in the world beyond.

THE STATEMENT OF DR. EVANS

A SHORT time after the demise of my dearly esteemed life long friend, Professor Carl Winter, his servant, Carl Summer, who, pending the settlement of the professor's estate, had been left in charge of the latter's residence, called me up on the telephone, and begged me to hurry over to the house, as something very terrible had happened.

When I arrived, Summer, who was in a mental state bordering upon collapse, conducted me to the library, where I found Mr. John Barton, a friend of the professor, with whom he had conducted some secret experiments of importance, seated in a large chair of peculiar mechanical construction, in an attitude which at once indicated to me that he was dead.

He had on a head-dress which resembled an aviator's cap, with exceptionally heavy goggles. A number of wires ran from the front and sides of the cap to a complicated apparatus at his right hand, upon a table of very massive construction.

There were two of these chairs and mechanical tables. The old servant pointed to the apparatus, and there was positive intense hatred in his eyes and voice as he cried:

"It's a devil machine, sir! And it killed both Professor Winter and his friend!"

My immediate thorough examination corroborated beyond all doubt my first conclusion that Mr. Barton was really dead.

Summer, upon being questioned, stated that Barton had that day come and had immediately gone to the library. A few minutes later the old servant had heard him start the machinery on the table. Having a premonition of disaster, he had crept to the closed door and had tremblingly listened.

Suddenly there had been a loud shriek from the machinery, and a horrible groan from Barton. Wrenching open the door, Summer had rushed inside and had pulled out the main switch on the wall, which he knew controlled the machinery. But he had been too late. Something had gone wrong with the machinery, and it had cost Barton his life.

The very next day I received a bulky registered package by mail from Barton, dated a day earlier. The package included a manuscript and a letter which explained many things.

Evidently Barton knew that he was going to his death, for he had left his entire fortune to charity, and before his fatal experiment, had written the entire manuscript, in compliance with the dying request of my friend, Professor Winter.

In his letter to me, Barton requested me to publish

the manuscript he had written, and told me that he was going to try to reach his soul mate, the woman he loved on the plane below the infra-red.

I have carried out the request as a sacred trust to both Barton and my dear friend, Professor Winter, and must let the world judge the merit or demerit of the case.

(Signed) FRANK EVANS, M.D.

THE END

ROBUR THE CONQUEROR

By Jules Verne

(*Concluded from page* 849)

there by several peaks, lost in the snows that bounded the horizon.

Leaning against the fore-cabin, so as to keep their places notwithstanding the speed of the ship, they watched these colossal masses, which seemed to be running away from the aeronef.

"The Himalayas, evidently," said Phil Evans; "and probably Robur is going round their base, so as to pass into India."

"So much the worse," answered Uncle Prudent. "On that immense territory we shall perhaps be able to——"

"Unless he goes round by Burmah to the east, or Nepaul to the west."

"Anyhow, I defy him to go through them."

"Indeed!" said a voice.

The next day, the 28th of June, the Albatross was in front of the huge mass above the province of Zang. On the other side of the chain was the province of Nepaul. These ranges block the road into India from the north. The two northern ones, between which the aeronef was gliding like a ship between enormous reefs, are the first steps of the Central Asian barrier. The first was the Kuen Lung, the other the Karakorum, bordering the longitudinal valley parallel to the Himalayas, from which the Indus flows to the west and the Brahmapootra to the east.

What a superb orographical system! More than two hundred summits have been measured, seventeen of which exceed twenty five thousand feet. In front of the Albatross, at a height of twenty-nine thousand feet, towered Mount Everest. To the right was Dhawalagiri, reaching twenty-six thousand eight hundred feet, and relegated to second place since the measurement of Mount Everest.

Evidently Robur did not intend to go over the top of these peaks; but probably he knew the passes of the Himalayas, among others that of Ibi Ganim, which the brothers Schlagintweit traversed in 1856 at a height of twenty-two thousand feet. And towards it he went.

Several hours of palpitation, becoming quite painful, followed; and although the rarefaction of the air was not such as to necessitate recourse being had to the special apparatus for renewing the oxygen in the cabins, the cold was excessive.

Robur stood in the bow, his sturdy figure wrapped in a great-coat. He gave the orders, while Tom Turner was at the helm. The engineer kept an attentive watch on his batteries, the acid in which fortunately ran no risk of congelation. The screws, running at the full strength of the current, gave forth a note of intense shrillness in spite of the low density of the air. The barometer showed twenty-three thousand feet in altitude.

Magnificent was the grouping of the chaos of mountains! Everywhere were brilliant white summits. There were no lakes, but glaciers descending ten thousand feet towards the base. There was no herbage, only a few phanerogams on the limit of vegetable life. Down on the lower flanks of the range were splendid forests of pines and cedars. Here were none of the gigantic ferns and interminable parasites stretching from tree to tree as in the thickets of the jungle. There were no animals —no wild horses, or yaks, or Thibetan bulls. Occasionally a sacred gazelle showed itself far down the slopes. There were no birds, save a couple of those crows which can rise to the utmost limits of the respirable air.

The pass at last was traversed. The Albatross began to descend. Coming from the hills out of the forest region there was now beneath them an immense plain stretching far and wide.

Then Robur stepped up to his guests, and in a pleasant voice remarked, "India, gentlemen!"

END OF PART I

Discussion

In this department we shall discuss, every month, topics of interest to readers. The editors invite correspondence on all subjects directly or indirectly related to the stories appearing in this magazine. In case a special personal answer is required, a nominal fee of 25c to cover time and postage is required.

AN INGENIOUS CRITICISM AFFECTING FREQUENCY OF ETHER WAVES

Editor, AMAZING STORIES:

I am an interested reader of your AMAZING STORIES, and not to take up too much of your valuable time, I will be brief.

In the story, "Around the Universe," by Ray Cummings, the author fails to take any account of the high speed effect of his Space Flier on the vibrations of light.

If the rate of red vibrations is to that of violet as 8:15, a speed of 186,000 miles per second would cause the light coming from ahead to reach up into the ultra-violet scale, and the light of the world behind would sink down the scale and be smothered in infra-red darkness, to reappear again ahead, as the Flier is cutting the vibrations from behind. With increase of speed, these vibrations would rise in the scale, until they, too, would disappear beyond the ultra-violet. Furthermore, catching up with the vibrations and cutting them the reverse way, would make the world they were leaving seem to recede ahead. There would be several more fantastic developments, e. g., in the case of the light coming in at an angle.

Yet at the rate of 740,000,000 miles per second, the author has the stars ahead open up and separate and close up again behind.

At that rate, and a higher one, the Creator alone knows what the increased vibrations would do to the electrons and protons that are supposed to constitute the atoms of a Flyer or any people therein.

For the next trip Cummings might fix up a speedometer out of the spectroscope and a delicate gravitational indicator might serve to indicate the regions most nearly void of matter.

W. P. Wuebben, Donnellson, Ia.

(*Continued on page* 904)

BUILD YOUR OWN SHIP MODEL

CONSTITUTION
Size: 30" high; 32" long; 10" wide (overall)

You can build a beautiful Ship Model as low as $4.98 or a Loud-speaker Ship Model for $12.50 with your own hands in a few hours of pleasant pastime from parts, cut to fit and ready to assemble, supplied by the largest builders of ship models in the world.

A fifteen-year-old school boy won first prize in a model building contest with a Constitution model built from our kit of parts. More than 1,000 models were entered in this contest.

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This is the most beautiful loud speaker on the market. We will supply you with all parts necessary and complete instructions for building this beautiful loud speaker ship model. The price of $12.50 also includes the melody sail and loud speaker unit. The unit is of the Electro Magnet type and does not require power amplification to bring out the low notes as it gives faithful reproduction at all frequencies. The mainmast is deeply imbedded in the solid wood hull and the unit is attached to this mast, making it impossible for counter-vibrations to affect reproduction.

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You need not know anything about ship building or carpenter work in order to build one of these ships. No special knowledge of ship model building is necessary either. We will supply all the parts, from the hull down to the smallest piece, all cut to fit and ready to assemble. You cannot go wrong. Diagrams and plans of parts that are included with each kit tell exactly what to do with each part.

These plans show you step by step just how the model is constructed. Everything is made so simple that even a small child can build a beautiful model.

All you need is a small hammer to tap the parts into place. Here is a part of the instructions copied word for word from the diagram and instruction sheet that goes with the kits. "Take part No. 57 place it in front end of part No. 56 and tap lightly with a hammer. Next take part No. 58 and place it up against No. 57 and tap it with a hammer to bring it into place."

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Check which model you want shipped.

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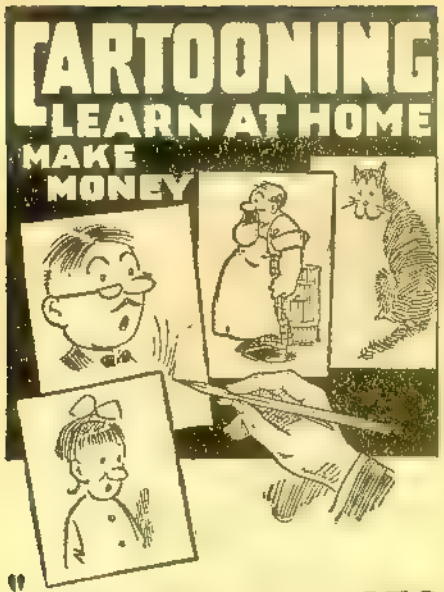

"Student Receives $250 For a Few Cartoons"

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Age

FOURTH DIMENSION STORIES AND INTERPLANETARY VOYAGING ASKED FOR

Editor, AMAZING STORIES

Will you let a "longhorn" Texan "horn in" on the "Letters from the Readers" column? I have been reading AMAZING STORIES since the first issue. Indeed, it is the only fiction magazine that I read regularly. Wild west stories and the old threadbare love plots long ago ceased to thrill me. I began searching for "out-of-the-ordinary" stories in libraries and in the current magazines. I soon read all of Wells, Verne, Defoe, Poe and the few other older classic writers of this type of story and I began wishing that some enterprising editor would publish a magazine featuring this kind of story. AMAZING STORIES is a very satisfactory materialization of this wish.

I have just finished reading Ray Cummings' "Around the Universe" and found it not only entertaining but artistic in the extreme from the standpoint of short story technique. The dream character of Sir Isaac impersonating the well-known writers of scientifiction was entirely pleasing. However, it seems to me that Mr. Cummings overstepped the bounds of good science—or even dream science—when he placed a solid encompassing shell about the atom. To have had the Professor, Tubby and Ameena plunge into the realm of Empyrean Fire of the old Ptolemaic theorists would have been just as scientific. But no matter, Mr. Cummings succeeded in putting over some good lessons in astronomy in a little more pleasing language than one usually finds in textbooks.

Of all the stories published in our magazine to date I liked Serviss' "The Second Deluge" best. Being an astronomer myself in a more or less amateurish sort of way, I know Mr. Serviss as an authority on modern astronomy, as well as a weaver of charming tales. At least one such serial a year from the pen of Mr. Serviss would greatly enhance the value of the magazine to me. I think the readers are also fortunate in getting the new stories of H. G. Wells as well as his older stuff. I consider Mr. Wells one of the most far-sighted thinkers of our age. His ability to forecast scientific progress and achievement of the future is almost uncanny, as evidenced by some of his older scientifiction novels, such as "When the Sleeper Awakes" and "The War in the Air," and short stories like "Armageddon," "In the Days of the Comet," etc.

Only one story has appeared in AMAZING STORIES so far that I could not seem to like. That was "Red Dust." In fact, I much prefer stories like "The Visitation," in which the whole theme is optimistic, and the destiny of the human race is painted in brighter colors. Don't we see enough of the morbid in real life without bringing it too forcibly into fiction? After all, isn't it just as probable that an invading race from Mars or Venus would bring good to the world as bad?

Please give us more Fourth Dimensional stories. I consider this one of the most interesting subjects of modern science. Relativity and the Fourth Dimension have already radically changed our scientific thought. What our ideas and conceptions of the universe will be one hundred years hence no one can say, but it is a safe bet such conceptions will be molded to a great extent by relative and ultra three-dimensional mathematics.

In closing may I repeat that AMAZING STORIES fills a long felt want in my reading diet. May it prosper and grow far into the future of which its authors dream. May it be a true prophet of scientific achievements to come as its sister Gernsback publications have been.

Sterling Bunch,
Fort Worth, Tex.

[We firmly believe that, if the stories we publish were restricted to absolute fact, with the imagination of the authors permitted to go only into the realm of cold actuality, much of the interest of AMAZING STORIES would vanish.

We are surprised at your views of the story, "The Red Dust," even if it is not optimistic. The majority of our readers found a good deal of charm in the presentation of the primitive life and in the suggestion which it carried of a future development, and of the process of education through the generations.—EDITOR.]

THE SEMI-MONTHLY MAGAZINE—MORE ABOUT RAY CUMMINGS' "UNIVERSE"

Editor, AMAZING STORIES:

I have been wanting to write you and commend you on your wonderful magazine for some time, but owing to my inability to type fast I have no attempted it.

Before I say anything I wish to emphasize my desire for a semi-monthly magazine. In your October issue, Raymond Jauregiuy gives a reason for not putting the magazine out twice a month, which is that in the average home five dollars a year is too large a sum to pay for a magazine.

As you say that a greater part of the magazine's circulation is at the news stands I am sure that those who buy it every month could dig up twenty-five cents *twice* a month instead if they appreciate the stories as much as "Discussions" testify. What do you think, Mr. Editor?

I never dare to bring an issue of AMAZING STORIES to school (as I have done) because I know that I would have very little left to read myself when the day is ended.

And now for a bit to say about the stories themselves. Strange though it may seem, and [illegible]

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egotistical, I, myself, had the same idea about the universe which Ray Cummings wrote about in his story "Around the Universe." I thought that we might possibly be on what is a speck of dust in a greater, stupendously more large sphere than the one which we proudly call ourselves of. We might be floating around with our little world in the space between the air molecules of the other world's atmosphere. What is a million years of time in our universe may be a split fraction of a second to them

Again, their world may be a speck of dust in another in relative proportion of their size to us, and so on forever. Food for thought?

"The Moon Pool" stands in my mind as the "best ever."

Yours for a still better magazine,

Bob Emmett,
San Francisco, Cal.

[The question of publishing the magazine twice a month seems to be a very open one with many pros and cons, but the semi-monthly magazine will not be started for some time to come. Your appreciation of Ray Cummings' story is of interest in view of the fact that another correspondent has taken up the same subject with equal interest EDITOR]

AMAZING STORIES ON THE NEWS STANDS

Editor, AMAZING STORIES:

Having been a reader of your magazine, AMAZING STORIES, for over a year, I have always remembered the date on which the monthly issue is due to appear on the news stands, and have not missed a single copy since I first began reading it. Perhaps you wonder why I do not subscribe and save the trouble of having to go to the news stand for my copy. That is because I am constantly traveling from one place to another, and it would give you too much trouble in changing my address. However, no matter where I am, once I get my copy of AMAZING STORIES I do not let even a train wreck or a motor accident disturb my interest in finishing one of the stories contained in its pages, come what may

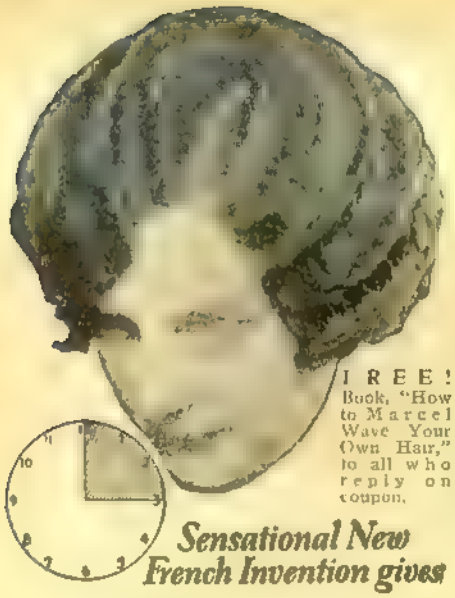
For some time I have followed the discussions concerning authors, stories, suggestions, etc. contained in the pages of AMAZING STORIES, and have noticed that there seems to be an eagerness toward having you publish AMAZING STORIES twice a month, with all kinds of suggestions as to the "how." Much as the publishers of the magazine would like to do this, and there is no doubt that they could secure sufficient material, surely it would hardly be practical inasmuch as the magazine is hardly two years old, contains so few advertisements, and is not yet paying for itself, if I understand this correctly. I am quite sure that the publication of AMAZING STORIES once a month is really remarkable, considering the difficulties it had to start out with and is still encountering. If folks would give it time, I am sure it will advance slowly but surely into one of the outstanding scientific publications yet to come. Provided this will be true, I do not believe that its present readers will mind waiting a while until it is announced that AMAZING STORIES is paying for itself, advertisers are a good deal more confident in it, and above all ye editor will be considering printing it twice a month.

There is another thing I would like to say in regard to AMAZING STORIES as it is now, and that is that the style of type used is very plain and readable, the illustrations well placed and every page neat and attractive to the eye. It has been the practice of other magazines as they grow older to change the size of type and often, in doing so, lose subscribers accustomed to the old form of plain and readable type. Though in time you may rearrange your forms and illustrations, I think it would be unwise to switch to a different kind of type, as the present kind is excellent.

So far I have not commented upon or perhaps dropped a hint of criticism concerning your stories or authors, but I may some other time, who knows?

Joseph C. Collins,
Lakewood, O

[We are glad that our correspondent approves of our very clear and readable type. Legibility is of course, a great thing, and we shall certainly keep it in mind as a permanent feature of AMAZING STORIES. EDITOR]



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I wish to express my appreciation of your prompt reply to my letter and to the recommendation to the General Electric Co. I intend to start the student engineering course at the works. This is somewhat along electrical lines, but the fact that I had a recommendation from a reliable school no doubt had considerable influence in helping me to secure the job.—H. VAN BENTHUYSEN

So far I've been more than pleased [illegible] your course and am still doing nicely. I hope to be your honor graduate this year.—J. M. NORKUS, JR.

I find your course excellent and your instruction, truthfully, the clearest and best assembled I have ever taken, and yours is the fifth one I've studied.—JAMES J. KELLY

From the time I was having Chemistry it has never been thus explained to me as it is now. I am recommending you highly to my friends, and urging them to become members of such an organization.—CHARLES BENJAMIN

I shall always recommend your school to my friends and let them know how simple your lessons are.—C. J. AMDAHL

I am more than pleased. You dig right in from the start. I am going to get somewhere with this course. I am so glad that I found you.—A. A. CAMERON

I use your lessons constantly as I find it more thorough than most text books I can secure.—WM. H. TIBBS

Thanking you for your lessons, which I find not only clear and concise but wonderfully interesting, I am—ROBT. H. TAYLOR

I received employment in the Consolidated Gas Co. I appreciate very much the good service of the school when a recommendation was asked for.—JOS. DECKER

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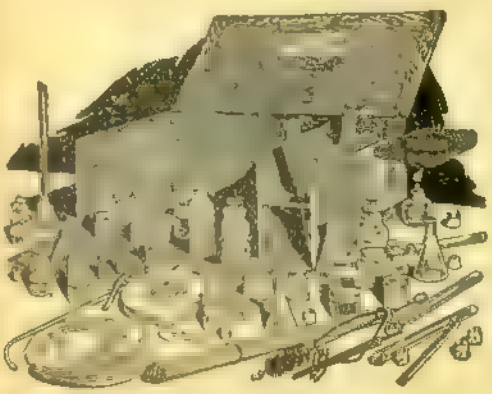

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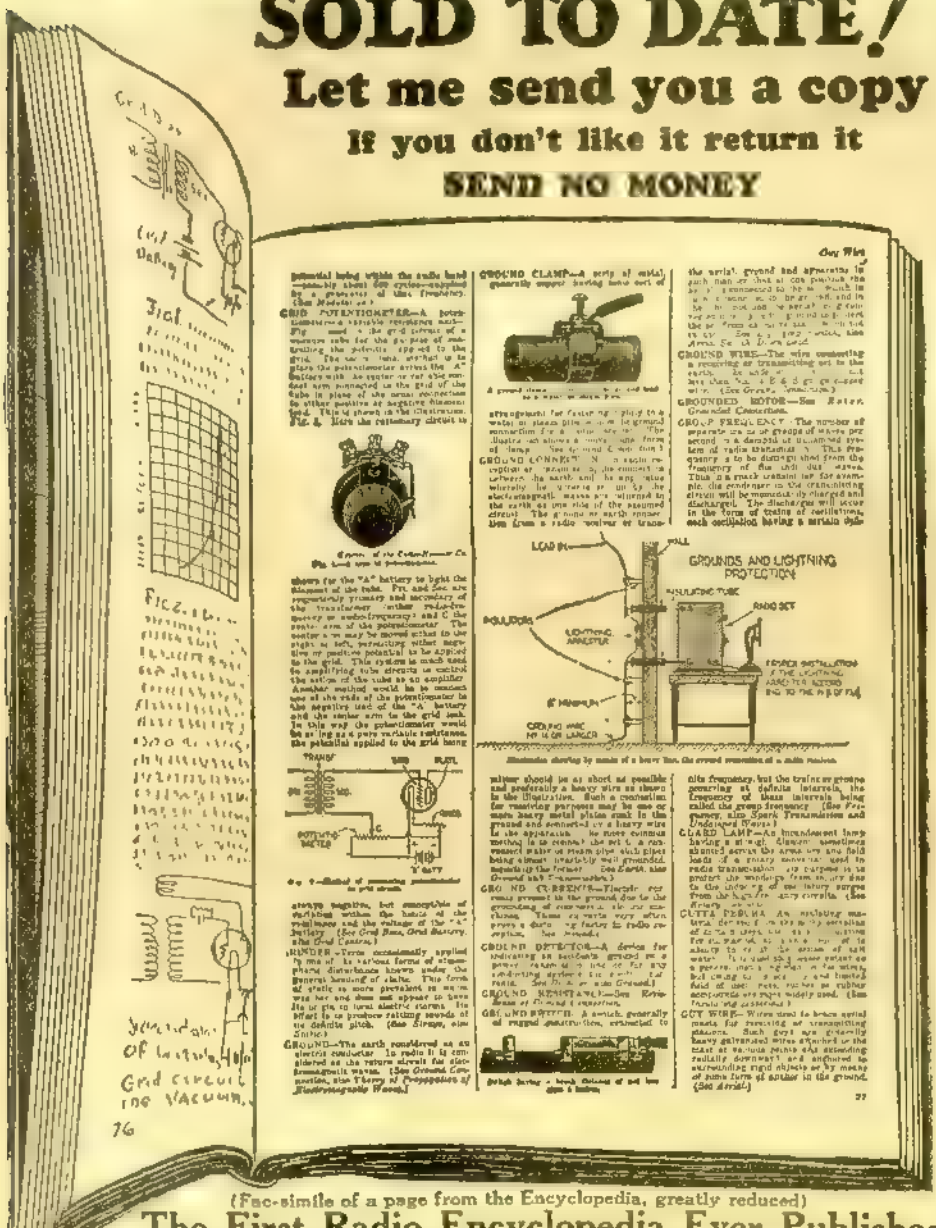

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CRITICISM OF AUTHORS, ARTISTS AND SUBJECTS. SUGGESTIONS FOR REPRINTS

Editor, AMAZING STORIES

Having perused each number of AMAZING STORIES from cover to cover since the first issue, I feel entitled to offer some criticisms.

The binding of the magazines in recent months is disgraceful. I save my copies but am hindered by the fact that they fall apart before half read. Please use a binding that will hold the book together and I am sure that a great many readers will be the better pleased.

Another thing that I find abominable is the illustrations. I am in favor of plenty of pictures, but not such lifeless and inanimate imitation cartoons such as you have been using. They don't even look like drawings of statues. You should get an artist who would put a little life in his sketches.

The authors are good but somewhat overdone. H. G. Wells is a big favorite with me but you overexploit him. You have not printed an issue yet that failed to contain some Wells. Give someone else a chance.

Merritt is good but too imaginative. Give us something that is more in line with known science.

The Verne stories are all right but they sound too old and have too much of a dry journalistic flavor. I won't weep if you drop him.

Keep Burroughs out of AMAZING STORIES. He is too imaginative and entirely too romantic, and not much real science. Am getting sick of reading of a man going to some other planet, or to the middle of the earth, or to some forsaken jungle, always to find the same thing—some "beauty" among the savages. I have read wholly or partly every story that Burroughs has written before I knew better, and find him to be the most magnificent liar I have seen in print.

Cummings also has an abominable habit of going into out-of-the-way places for his heroines. Once or twice is all right, but for the love of Pete, make it the rule to keep 'em on the earth. They sound a little too improbable away from home.

The comic invention stories are poor. Too much stress is laid on the humor part with the result that the tales get quite ridiculous. They are nothing more than rank imitations of Edgar Franklin's old "Hawkins" stories of 24 years ago anyway. If these tales were dropped, I'll bet that the circulation would advance enormously.

How about shaking up the bag a little so that we could get a few new stories? The reprints are very good, but you should give the other stories a chance. This kick is aimed at the longer stories. It would be much better if you at least alternated a new serial with an old one. Of 19 issues you have put out to date, and the ANNUAL, only two numbers have been completely new to me.

Speaking of reprints, I should like to suggest a few that I should be glad to meet again. "The Planeteer" and its sequel, "King of Conserve Island" are the best interplanetary stories I have ever read. They were in All-Story Weekly in 1917-18 and could easily be run in two issues. "The Brain Blight" and "The House of Sorcery" by Jack Harrower (All-Story, 1913) are also very good. "Unsight-Unseen" (All-Story, 1912) is a wholesome humor story and as good an invisibility story as I have seen. I should especially like to see "The Mastodon-Milk-Man" by C. MacLean Savage, as I never read its conclusion. Edgar Franklin's "The Amiable Aroma" is another good scientific humor yarn. How about "The Blind Spot" by Austin Hall and Homer Eon Flint? Philip M. Fisher has also written a couple of good ones, which are short. "The Powder of Mirth" by Ben Ames Williams belongs in AMAZING STORIES.

Prof. Serviss seems to have published a story somewhere in 1898, entitled "The Conquest of Mars." I have been unable to trace this story, but should like to read it. Could you give me a little assistance in finding this story somewhere?

You have added a good author in Garrett Smith. I have read some of his stories and they are very fair.

The suggestion of a Scientific Club is very good and it would be a great thing were its purpose carried out.

There should be in either SCIENCE AND INVENTION or AMAZING STORIES a page devoted to a scientific problem or theory. There should be a problem submitted in each issue, with prizes given for the best problem submitted and for the best solution given. Someone could give a theory on the solution to some question undecided by science, which if plausible should be put up for argument, with a prize for the best argument for or against the theory.

This thing is getting drawnout and I can't think of any further razzberries or medals to issue, so I guess it's time to close, with hopes for a bigger and better, twice-a-month, AMAZING STORIES, the best magazine in print.

T. I. Saurela,
Co. D., 23rd Infantry.
Fort Sam Houston, Texas.

[The task of pleasing thousands of readers is one which cannot be carried out to a state of completeness. The authors which this correspondent complains of and the interplanetary travel stories which he objects to are exactly what are liked and appreciated by a great number of the greater proportion of our readers. We have received and published numbers of letters commending the very things which are found fault with in this letter. But we want letters of criticism and

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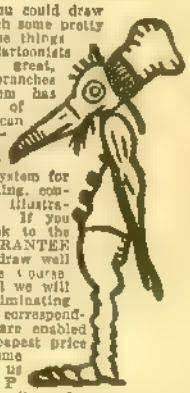

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they are published without any regard as to whether they are favorable or unfavorable. Such letters as the present from a severe reader add greatly to the interest of this department of your and our magazine. Incidentally the artist, Paul, has received the warmest commendation from many of our readers. Just the same, our correspondent seems to know his scientifiction, and for that reason alone we respect his views.—EDITOR.]

THE YOUNG MEN'S SCIENCE CLUB

Editor, AMAZING STORIES:

On reading the October issue of AMAZING STORIES I came across your answer to my letter, concerning the *Young Men's Science Club*, and I want to thank you for all the nice things you say about it. I am glad to hear that you will back up the club with your fullest power. I want to say this, that with a magazine such as AMAZING STORIES behind the new club we can't lose.

By making AMAZING STORIES the official organ of the club you have "killed two birds with one stone" as the saying goes. It will help the club, and help to enlarge the circulation of AMAZING STORIES to a great extent.

I am doing my bit to help the new proposed club get started by telling my friends about it and explaining to them the advantages of such a club. I think that, if all those that are interested in such a club would tell their friends about it, they would be helping out the new club immensely.

You can count on me to back up the new club as well as your magazine, AMAZING STORIES, to the utmost.

Now before I close I would like to say a few words about your magazine. I have read quite a lot about this twice-a-month idea and I want to say this: please don't make AMAZING STORIES a twice-a-month magazine because many magazines have been spoiled because they have come out too often. I don't want such a thing to happen to AMAZING STORIES as it can't be beat as it is today.

Wishing your magazine innumerable years of prosperity, I remain,

Holger E. Lindgren,
Olympia, Wash.

[We are glad to see the Young Men's Science Club favored by so many of our readers. It is an idea which must be carried out by the efforts of its members. It is not to be directed as a ship by one person, but it must be a republic in the fullest sense of the word. Everybody must have a part in it.

It is interesting to find some of our correspondents opposed to the twice-a-month idea. In any case that is far in the future. At present we have all we can do to meet the almost too favorable views of our readers in the pages of AMAZING STORIES.

It is their magazine, and we are their faithful servants.—EDITOR.]

KINDLY CRITICISM: THE YOUNG MEN'S CLUB

Editor, AMAZING STORIES.

I must confess that when I first read your excellent magazine, I felt that the stories were rather far-fetched, and with each number I had doubts that I would want to read the next. As time went on, however, I found myself unconsciously looking forward to the tenth of the month, when AMAZING STORIES appears on the stands here. I hope that by being a subscriber I will now get it a few days earlier. I find most of your stories very entertaining as well as instructive. Stories of the Unknown hold wonderful possibilities for mystery and romance.

I have always been highly interested by pseudo-scientific tales, especially of travel to other planets, as I am a deep student of astronomy. I believe your best stories have been reprints from Wells, Verne, Serviss and Burroughs, although the latter's work hardly belongs in your magazine. Some of your readers have complained of slight lapses in the scientific construction of plots; others have complained of unnecessary detail and too much description. I feel that we can easily afford to overlook a few discrepancies in science in such entertaining fiction; for example, Burroughs' combining the mammal and reptile in the same animal; his evolution from reptile eggs to apes and then human beings all in one lifetime; in "The Green Splotches," the men from Jupiter who were plants, and received nourishment from the sunlight, although plants of any consequence, certainly plants as large and heavy as human beings, receive their nourishment from chemicals in the ground, through roots. I found Ray Cummings' "Around the Universe" a very clever humorous story, teaching us a lot about astronomy, even if Tubby's journey was made possible through the simple expedient of wishing for a space machine.

To my mind, the thing that makes a scientifiction story worth while is not so much strict adherence to science, as it is describing in such minute detail conditions in the new world or in the new state of affairs, as to bring a picture of reality to the mind of the reader. I don't know of any story I enjoyed more than Wells' "Time Machine." His wealth of detail in presenting conditions attending the trip into the future, was what made the story seem plausible and real.

I am very much interested in the proposed Young Men's Science Club, and ask that you enroll me as a member if possible, although I am a little past the age limit suggested. I would greatly enjoy taking part in scientific [illegible]

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I really hadn't intended to take up so much space with my own opinions and views, which are unimportant. I await with pleasure the next number of AMAZING STORIES, which will be mailed to me as a subscriber. If more subscriptions will lessen your troubles I trust that many other readers will follow my example.

Edgar Orr,
Atlanta, Ga.

[Our correspondent carries out exactly some of our ideas which we have been giving in our discussion columns. When our correspondent started with our magazine, he felt that the stories were rather far-fetched, and here we wish to state that they are not only far-fetched but that the charm of the magazine lies partly in this very quality. This correspondent follows up AMAZING STORIES, and when he speaks of the wonderful possibilities for mystery and romance in "stories of the unknown," to use a proverbial expression, he puts the whole thing in a nut-shell. He likes Burroughs, Wells, and Ray Cummings, and we are glad to see that their work has excited his imagination to the degree of making him a critic of the possibilities of the various statements.

We firmly believe that if our stories were solid matter of fact they would cease to be "Amazing"—and people like to be amazed.—EDITOR.]

AN EXPLANATION FROM ONE OF OUR AUTHORS

Editor, AMAZING STORIES:

Being a Burroughs admirer I rather resented those people who "knocked" him because of his so-called hatred of the Germans. As I was curious I wrote him and in return received a very nice letter. Quoting his letter in regard to the Germans, he says:

"I am very sorry that a couple of my stories have given the impression that I do not like Germans. These stories were written when the feeling against the Germans was very high in this country and to the tremendous amount of anti-German propaganda during the war. I realize now that much of this was exaggerated and I know that it does not do any of us any good to foster enmity and hatred."

I call this a clear explanation and would like to have it published. Keep up the good work in AMAZING STORIES. Try some of Edgar Allan Poe and try "The Purple Sapphire" by John Taine.

John W. Bell,
Whitman, Mass.

[Any story written during the World War, is bound to seem prejudiced, and we are glad to get Mr. Burroughs' very clear statement to you.—EDITOR.]

THE DISCUSSIONS COLUMN AND CRITICS WHO WRITE SOME OF THE LETTERS

Editor, AMAZING STORIES.

I have been reading your magazine for over a year now and I enjoy it very much. "The Moon Pool" is, in my estimation, one of the best stories you have published. The author's power of interesting and enthralling description, as well as narration, was exceptionally good. "The Second Deluge" was another fine story. I don't like the gruesome tales very well, but they are all right in moderation. I enjoyed "Around the Universe," even if it is a reprint. I have no fault to find with any of your reprints. The "Treasures of Tantalus" had me very delicately balanced on the front edge of my chair, and the Discussions Column is a source of real enjoyment. I'm going to talk a little to both you and your correspondents now.

I agree with Mr. Lucy of Palo Alto in his comment on the "critics" who seem disappointed to think that they can find flaws in the stories. The author has to have a joker in the deck or he would be accused of everything from insanity to treason. Furthermore, if the stories were true they would be in the newspapers and would be quite common potatoes. It puts me in mind of those who "view with alarm" the Atlantic and Pacific flights, calling them the exploits of "fools." (I refer to the successful ones.) It makes me think of some other fools like the Wright brothers and so on.

I have always had much the same ideas that Mr. Hale of California has, although I never dared air them for fear of ridicule. A person is truly possessed of a wonderful conceit if it will allow them to declare that this dust speck of an earth is the only inhabited world in the universe.

I am much amused at Miss Moran's fearful purchase of the "cheap fiction," which she tells of in the October issue. I am sorry to say that AMAZING STORIES IS considered "cheap fiction" by a good many people. If I may venture to, I will suggest that your cover is responsible. I, myself, find nothing wrong, but my friends have told me that if the cover were a little less wild there would be less chance of people getting the "cheap fiction" impression. My mother also suggests better paper and illustrations on a par with the *American Magazine* and others of that type. I, also, heartily agree with Miss Moran's final paragraph. If you can "turn some brilliant and fertile minds . . . into rivers of knowledge that it might otherwise have overlooked and thus assist in giving to the world a genius" you will have more than justified the existence of AMAZING STORIES and stolen a big march on the prejudiced.

I have just read Mr. Earle B. Brown's letter

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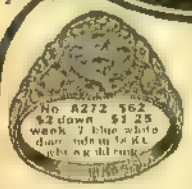

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about a pro and con department in "Discussions." I think that is a good idea and will prove very interesting to the readers of the magazine.

I am in favor of the rib ticklers put out by Messrs. Skinner and Simmons, and I utterly disagree with Mr. Sarason, of New York City, in his letter in the October issue. Funny stories like the ones in question are, in my opinion, very acceptable. They give you a chance to catch your breath and indulge in a hearty laugh.

I will "sign off" now with a final admonition against a semi-monthly magazine. In the first place it would boost the price too much, and in the second place a steady diet of any one thing becomes palling.

Yours with the hope that AMAZING STORIES will soon be on a paying basis

Glenn D. Rabuck,
Ames, Iowa.

[We spare no effort to get excellent stories and stories strictly in the line of the fiction of science, for our very appreciative readers.

To our mind, in "The Moon Pool," the description of the characters is most vivid, especially that of the Irishman with his strange mixture of spirituality and every-day existence. We are getting such interesting letters from our correspondents, that our discussion section bids well to be a very interesting part of our magazine. We make no effort to publish only favorable letters and do not omit the unfavorable ones. The latter are most interesting and valuable. As regards our illustrations, the artist, Paul, has received any amount of commendation from our readers.—EDITOR.]

THE TARZAN IDEA IN THE DAILY PRESS

Editor, AMAZING STORIES:

I enclose in this letter a newspaper clipping which I thought might be of some interest to you and to some of the readers of your splendid magazine, AMAZING STORIES. The story was clipped from the September 20th edition of the Memphis (Tenn.) *Commercial Appeal*. It may not be worth very much but it verifies some of your statements concerning impossible things.

Many persons, after reading Edgar Rice Burroughs' "Tarzan" books, may have the opinion that the subject is just a little far fetched. This is not so. The "Tarzan" idea is now an established fact as may be seen from reading the clipping.

The stories in AMAZING STORIES are all very interesting and the editorials more so. I am very well pleased with the magazine and must congratulate the editors and staff on the efforts they have put forth in making AMAZING STORIES a success with its readers.

I am, indeed, surprised to learn that the magazine is not on a paying basis yet. This is a very disagreeable fact and I sincerely hope that this will not affect the publication of the magazine.

"BABOON BOY" DISCOVERED IN SOUTH AFRICA, REPORT

Captured by Troopers After Fierce Fight and Taken by English Family—Now Grown Man, But Retains Traces of "Good Old Days."

London, Sept. 17.—"Tarzan" has come true, and Kipling's "Mowgli" who was reared by the wolves, is not so far-fetched as adult readers may suppose, according to the report which has just reached here from Johannesburg, South Africa, of the discovery of a "baboon boy."

According to the story, a South African native baby was kidnaped from his kraal by baboons, was cared for by a baboon foster mother for years and spent a large period of his boyhood roaming the wilds with the troop.

About 25 years ago two troopers of the old Cape police were making their way through wild country in Southeast Cape Province when they came on a troop of baboons. They fired at them and the troop scampered away. But one monkey who tailed off at the rear seemed to be wounded. The troopers galloped up to the laggard and to their astonishment, found instead of a baboon a well-grown native boy hopping along on all-fours after his departed associates.

When they came to close quarters with the boy he scratched and bit them fiercely and put up a hard fight before he was overpowered. His naked state made it exceedingly difficult for the troopers to get a firm grip on him.

All efforts to trace the captive's parentage proved futile. He was, therefore, handed over to the authorities of a mental hospital in a neighboring town, where he was kept for a year and given the name of Lucas. The boy was unable to talk and showed a great dislike for orthodox human food. Raw meats and prickly pears proved to be his favorite diet and his appetite was enormous. Though mischievous, he turned out not to be vicious and was soon won to those about him by kindness. But it was found extremely difficult to make him walk upright.

Attempts were made to place the boy with some one who would undertake to train him. Finally, G. H. Smith, the owner of a large farm in the Bathurst district of the Cape Province, heard of Lucas and so, some 24 years ago, the "baboon boy" came under the care of his present employer.

Mr. Smith at first was worried about the task he had undertaken, but Lucas had by this

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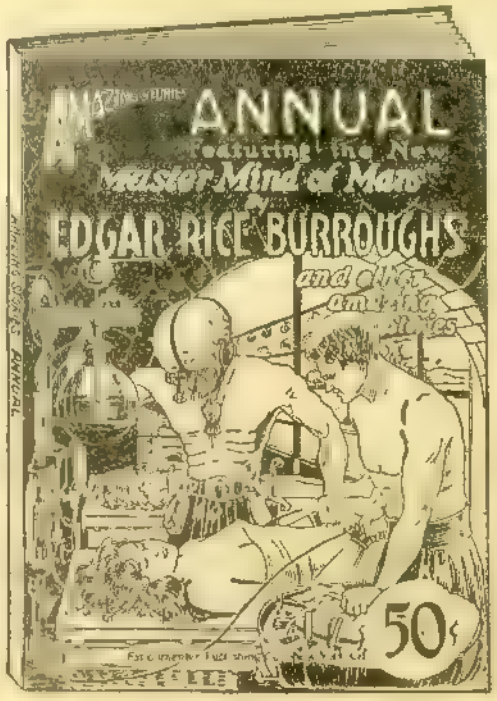

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time lost his original dislike of human beings and was a comparatively docile native boy, though still possessing odd, monkeylike mannerisms. The boy was found to be covered with scars which looked as though they were the result of bites. One leg had apparently been broken years before but had been extremely well set. On top of his head was a semi-circular scar which Lucas upon he learned to talk, said was the result of a kick from an ostrich.

Lucas can only speak English, as his duties bring him into contact mostly with only his master and mistress. He is very fond of children, and his special delight is to take care of his employer's little ones. Today Mr. Smith would not exchange his one-time doubtful bargain for any other two native workers.

Lucas does not mind talking about what he remembers of his boyhood with the baboons. He tells how one big baboon used to take him in its arms on cold nights and put him warmly to sleep in the undergrowth of the bush, and of how edible crickets were collected from the ground to appease the pangs of ever-present hunger. On request, Lucas will even go down on all fours and give an exhibition of how he marched with the baboon herd.

There is one characteristic of his he has not been able to shake off. He has absolutely no sense of time. Sun-up and sun-down mean nothing to him and he must always be called to do a certain thing at the appointed hour. When he laughs there is more than a suggestion of the monkey shrillness in his tone. His features too, are particularly simian when seen in profile.

But Lucas holds no brief for baboons nowadays. There is one on Mr. Smith's farm which was captured in babyhood and has been petted to middle-age by an indulgent household. Lucas, however, is scarcely on speaking terms with it.

John M. Sturm,
Hayti, Mo.

[We are giving at full length the article from the *Commercial Appeal* of Memphis Tenn.

It is hard to believe that the story is authentic, but it certainly reads very well.—EDITOR.]

AN INTERESTING CRITICISM FROM CRITICAL READER

Editor, AMAZING STORIES:

It is very seldom that I read magazine stories as I consider the majority of them too "plebian." I much prefer spending my time reading Romain Rolland and Fyodor Dostoievsky. It was purely an accident that I discovered AMAZING STORIES a few now I purchase it along with "Vanity Fair," "Time" and "Polo" each month.

Because I am not ordinarily a magazine reader I am taking the liberty of writing you to say how very much I have enjoyed AMAZING STORIES. A few months ago when my regiment went into the field for the annual target practice, I took a copy of your magazine with me, and recommended "Green Splotches" to a friend of mine. He enjoyed the story very much and the result was that the magazine was very much in demand and I practically had to run a roster on it.

However, I must admit that I do not read the stories in each issue as there are only a certain number that appeal to me. I had read "War of the Worlds" and the "Time Machine" a long time ago, and they are the type I care for. I gave the "Moon Pool" a fair trial but did not bother to finish it. It promised well in the beginning but turned into a child's fairy tale. However, there was no doubt but that it was well written and filled with plenty of science.

I might suggest that a plainer or at least a more simple cover would be more appropriate as it would set AMAZING STORIES above the plane of terrific magazines that line the newsstands with their "hair-raising" pictures.

Are contributions from your readers welcome? And if I should submit one of the stories I have written would it receive a frank criticism?

Frank Carpenter, Jr.,
Lieutenant, 15th F. A.,
Fort Sam Houston, Tex.

[All this criticism from a very competent critic needs no comment from us; in answer to the question at the end, we can only say that contributions from our readers are very welcome, and we give a full examination and criticism to any story which our reader submits.—EDITOR.]

A LIST OF FAVORITE STORIES

Editor, AMAZING STORIES:

Although not a subscriber to AMAZING STORIES I have a complete set from its birth to the present date. My opinion is that it is far ahead of other magazines containing scientifiction stories.

My favorite stories up to date were: "A" to the Center of the Earth;" "The Star;" "The Malignant Entity;" "Station X;" "The Man Who Could Work Miracles;" "Moon Metal;" "A Columbus of Space;" "Beyond the Pole;" "Blasphemers Plateau;" "The Second Deluge," "The First Men in the Moon;" "Through the Crater's Rim;" "The Man Who Could Vanish;" "The Land That Time Forgot;" "The Green Splotches;" "The People of the Pit;" "The Plague of the Living Dead;" "The Moon Pool;" and "The War of the Worlds." (To be continued in installment). I also liked the "Scientific Adventures of Mr. Fosdick" and "Doctor Hackens

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Secrets." I would like more stories by A. Merritt. All of his stories interested me.

One thing I would like would be for AMAZING STORIES to come out twice a month. When this does happen I know its readers will be delighted.

I would like to see AMAZING STORIES prosper and herewith I give a little advice whether it may be right or wrong. Each month the AMAZING STORIES [illegible] if the magazine dealers [illegible] the magazine in a [illegible] public could see it, [illegible] cover would attract them. But in most magazine stores it is partly concealed by other magazines.

Wishing AMAZING STORIES the best of fortune, I am,

HARRY HESS
Bangor, Pa.

[Our readers must acknowledge that we publish letters on the basis of their interest and suggestiveness, irrespective of whether they praise or criticize unfavorably. What we look for and hope for, is constructive letters, not only from readers who are sometimes, as we know, too favorable in their criticisms, so that the editors can be helped in their work. All we can say about our correspondent is that he has picked out a number of stories which have met with our decided approval and which give us a comforting feeling that AMAZING STORIES has done well for its readers.—ED. EDITOR.]

A FAIR CRITIC

Editor, AMAZING STORIES:

When I first picked up your magazine and glanced at the cover I said "AMAZING STORIES!" Why not "Fairy Stories?"—and my brother and I laughed together. But although I'm Irish, I'll admit defeat and after I'd read your selection of "incredible facts" and read a few stories I became intensely interested and now I'm a devoted reader.

I wish to make a criticism, however, but it is about the subscribers. When I read the "Discussions" I was impressed by the fact that the readers bickered back and forth among themselves and criticised each other for their impressions. Everyone is entitled to his own ideas. Why not everyone write his criticism and leave the other fellow's opinion to "rest in peace." Then all time could be devoted to "constructive criticism" of the magazine.

I like stories of chemistry. Can't we please have more of them?

Why is WRNY at the top of each cover? Does AMAZING STORIES really have a broadcasting station?

In the August number, is the story of "The Man That Could Vanish" true?

I believe that AMAZING STORIES will help a great deal to make people give more attention to science and to let scientists have more of a chance.

Can't the magazine have a more substantial foundation? By the time mine gets read the second time it's all to pieces and then I have to get out the glue, etc., before I can put it into my library.

Marguerite Keeley,
Los Angeles, Cal.

[WRNY is owned by the Company publishing AMAZING STORIES, so we really have a broadcasting station of our own. Incidentally, it represents the highest type of radio work and its programs are selected with the greatest care and consideration to please the unseen audience. "The Man That Could Vanish," in the August number, is not a true story, but it is a great tribute to the author that it could be thought so.

We have not been favored by many letters from readers of the fair sex. We would like to hear from more of them. We thank our correspondent for her very nice letter.—EDITOR.]

DIFFERENCES OF TIME—TRAVELLING INTO THE FUTURE

Editor, AMAZING STORIES:

Allow me to add my brief paean of praise for the uniformly high character of your magazine. To those who devoured the books of Jules Verne and H. G. Wells your periodical is indeed a boon. Allow me also to add my comment on the stories of H. G. Wells which you have printed. I am impelled to do so because of the almost flippant manner in which so many of your correspondents seem to dispose of his stories as dull and inferior.

Of course the stories of Edgar Rice Burroughs are full of incident, but the incidents portrayed are mostly of the blood and thunder sort. Some minds may prefer stories in which the hero kills Brontosauri with his naked hands, in which gorillas are hatched out of eggs and gradually turn into human beings of a high order, in which on every page the hero saves the heroine, and slays a score of animals or men. But what scientific fiction is there in a plenitude of gory incidents? If stories like those are real, then so are "Perils of Pauline," and "Nick Carter." It is just in the atmosphere created by such masters as Wells, Verne, and Conan Doyle that their greatness lies. They can make a highly imaginative story such as an attack by Martians read like the story of an eye witness to the actual occurrence.

Your correspondent Riordan, in the October issue of your magazine, is an instance in point. He asks why no airplanes were sent out against the Martians. I think in all fairness to Wells you should inform your readers that "The War of the Worlds" was written about thirty years ago,

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before there were such things as airplanes. As for the manoeuvring of the British artillery, Mr. Rordan has an exaggerated opinion as to what Americans could do in like circumstances. The tanks in the last war were far slower object than the Martian machines, and yet the record of direct hits was quite low. Even at a thousand yards you must get the range first, before you can hope to hit your target. These Martians, according to Wells, retaliated with their heat ray before the range could be found. Their ray and their poison gas, combined with their mobility undoubtedly made them irresistible. Cortez in Mexico, and Pizarro in Peru never had such an overwhelming superiority in arms as these Martians possessed in the story, and yet they conquered empires with actual handfuls of men. As for the description of the flight from London, it is the best thing in the book. The disorganization of humanity, its frantic fear, its pell mell rush from the new terror, are all told so vividly that you forget you are reading fiction. It helps to make the story seem real. How many writers can do that?

There is one kind of story that depends on an utter fallacy. And that is the Fourth Dimension story in which Time becomes the Fourth Dimension. I think that Wells knew it when he wrote "The Time Machine." That is why he disposes of the reasoning which would seem to argue for the possibility of moving in the future in a page or two, and then proceeds to tell you an engrossing tale as to what might happen to humanity and the world in the incalculably remote future. A. Hyatt Verrill, however has made the mistake of making the reasoning the story, with the result that his tale is a farrago of mathematical nonsense.

Mentroso discovers that the reckoning of hours is different all over the world, and from that argues ingeniously in much the fashion that the ancient Pythagoreans argued. If you can fly fast enough you will leave Calcutta on Tuesday and arrive in Peru on Monday. As a matter of fact it is true that radio messages are sent on Tuesday and received on the previous Monday. Send a message from London at one in the morning of Tuesday and it will arrive in New York the previous Monday evening. But the fallacy lies in the purely arbitrary division of the week and the day. Mankind performs most of its miracles by symbols. The year is determined by the earth's orbit, the day is determined by the earth's rotation about its axis. The month, the week, the hour, the minute, and the second are purely arbitrary divisions. If time is different in two places it is because the difference was artificially created by mankind. Suppose mankind had said that instead of counting the hours according to sunrise and sunset, the hours all over the world should be the same. Instead of the sun rising in New York at five o'clock it would rise at ten; instead of going to work at nine we would go to work at two. We should easily grow accustomed to counting the hours differently, because we have already done it with one hour, our daylight saving time in Summer. If the hours should be reckoned the same the world over, what then becomes of Mr. Verrill's argument about jumping back in time? As a matter of fact such a reckoning would probably be more sensible than the present confused method. We don't shift our months about to suit the weather, why shift the hours about to suit the light? If Mr. Verrill should take a trip to the Argentine, he would find the trees blossoming instead of losing their leaves, the flowers would be budding, the insects humming, summer would be about to begin, whereas with us it is ending. Would he then say that he has travelled six months into the future, or six months into the past? If he would I should tell him to be his age. January isn't July in the Argentine because their January weather corresponds to our July weather. The time is the same, the weather is different. It is the same with daylight. The present time is the same here and in Calcutta, the light is different. No matter what your speed in travelling, time would be consumed, and you would arrive in New York from Calcutta later, and not earlier. The same time is called by different numbers in the two places, that is all.

Another instance: According to Jewish chronology this is the year 5688. Should Mr. Verrill step into a synagogue, would he be 3700 years older, because our reckoning says 1927? Absurd, isn't it? Why? Because both chronologies are artificial, and made for convenience of reckoning. It is just as absurd to say that a radio message leaving England Monday evening and arriving in New York at noon Monday takes five hours less than nothing in time to get to its destination. Both times are artificially named for purposes of convenience. So if Mr. Verrill should step from Russia where it would be November 1st into Poland where it would be November 14th the same day, would he step into the future two weeks, because Russia follows the Julian Calendar, and Poland the Gregorian? The time is exactly the same, the labels are different in the two countries.

All this talk of moving in the past and the future is fallacious. The theory seems to be that just as we see the light of stars hundreds and perhaps thousands of years after those rays were sent out, we can catch the past by the light that past happenings made. This does not take into account that with the passing of time and traversing of distance all waves lose their strength and are

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transmuted into other forms of energy. Take sound waves. These lose their strength and are dissipated so swiftly that the human ear can tell the difference. The same is true of heat waves and even light waves. Anyone owning a radio set will tell you the same of radio waves. If that weren't true any transmitting set could make itself heard anywhere and everywhere. So the sounds of all the past have long since been dissipated, and so have the light waves that this earth may have sent out, as far as the world is concerned. So that anyone trying to catch the past out of the air, as if unwinding a movie film, will find that the light waves have served to warm the air, the earth, the water, have aided in the creation of electrical, radio, and countless other activities, but are wholly unavailable for review. Certainly you couldn't hear any sounds made in the past. Sound waves dissipate too easily.

As for moving in the future, not even Wells can make out a plausible case for it. To get an impression of something that something must have existence. If nothing exists how can its image be taken? The future is too much fraught with doubt. All nature is accidental. Tomorrow we may enter a poison belt such as Arthur Conan Doyle describes, or we may be torn from the sun by another star or we may explode suddenly, or another glacial period may come stronger than the last, to wipe out all life. How can accidents be caught before they happen?

Of course one should not cavil at works of fiction, because they are fiction. At the same time the author of a work of fiction would do well not to reason too much about impossibilities. By doing so he spoils the entire effect. When, like Mr. Verrill, the author confines himself to the reasoning only, the result is arrant nonsense.

I. M. Lichtigman,
Brooklyn, N. Y.

[The term "arrant nonsense" could be applied to many of the World's classics. Your remarks on time are most interesting. Do you not see that the very story you criticize has set you to thinking, and there is suggested by you a most interesting idea. As you very justly remark, the acceptance of daylight saving proves your idea to be sound.

All that you write is interesting. But there is an error in the story which escaped author, editors and proofreaders, and seems to have escaped your notice also. On page 753 of the November issue, the author reverses the rotation of the earth.—EDITOR.]

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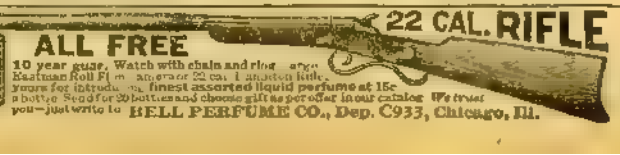

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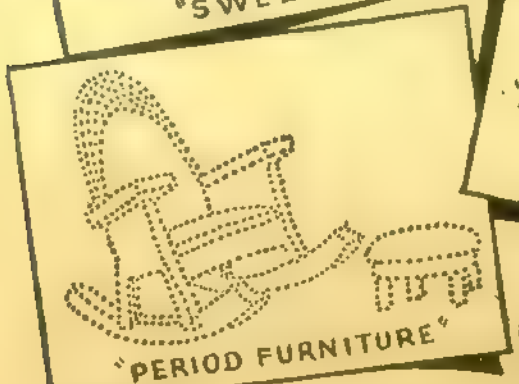

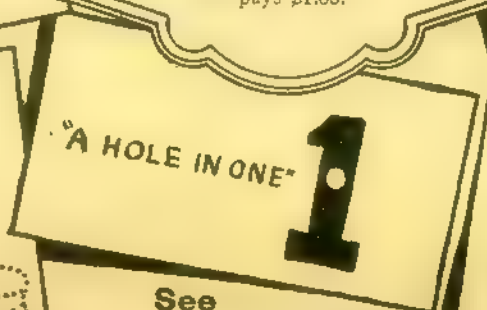

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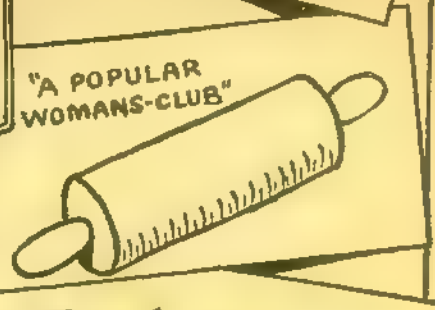

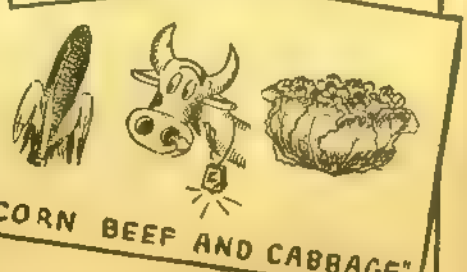

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State of New York
County of New York, ss.

Before me, a Notary Public, in and for the State and county aforesaid, personally appeared Hugo Gernsback, who, having been duly sworn according to law, deposes and says that he is the editor of the AMAZING STORIES and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, managing editor, editor, and business managers are:

Publisher, Experimenter Publishing Co., Inc., 230 Fifth Avenue.

Editor, Hugo Gernsback, 230 Fifth Avenue.

Managing Editor, Hugo Gernsback, 230 Fifth Avenue.

Business Manager, Charles E. Rosenfelt, 230 Fifth Avenue.

2. That the owner is:

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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent. or more of total amount of bonds, mortgages, or other securities are: NONE.

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H. GERNSBACK.
(Signature of Editor, Publisher.)

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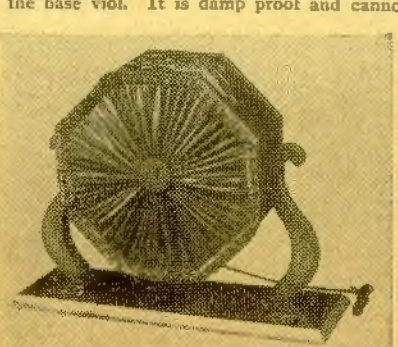

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You who already possess a standard fountain pen will find the Inkograph a most valuable addition to your writing equipment, for it will do everything any fountain pen can do and many very important things which it is impossible to accomplish with any fountain pen at any price.

Combines the Best Features

of both pen and pencil, minus the weak points of both, plus improvements not found in either.

The lead pencil smudges, the point breaks and its writing soon is obliterated. Most fountain pens skip, scratch, flood, clog, leak, blot, soil hands and clothing. The old stylographic ink pencil dries up, balks, blots, writes heavy, flows unevenly and is never reliable. The Inkograph feeds as fast and uniform on the 20th page as it did on the first

Cannot Leak

Not the tiniest drop of ink will spill, although one filling is sufficient to write thousands of words. Will write on any quality of paper.

Makes 3 to 4 Carbon Copies

at one time with original in ink. Bear down as hard as you like without fear of bending, spreading, injuring or distorting its 14 Kt. solid gold point. Are you a salesman?—use an Inkograph, make out your orders in ink and retain a duplicate for your records. Do you wish to keep a copy of your private correspondence?—use an Inkograph. Do you do office work which requires clear carbon copies?—use an Inkograph. Do you make out bills or sales slips?—use an Inkograph and make a permanent original in ink with carbon copies. You can permit any one to write with your Inkograph, for no style of writing can affect the Inkograph point as it will a fountain pen.

Draws Lines to a Ruler

Without smearing, smudging or blurring the paper. Writes with any color of ink.

Requires No Blotter

The ink dries as fast as you write, because the flow is fine, even and uniform.

Patent Automatic Feed

Prevents clogging. No complicated mechanism to clean or get out of order. A year's guarantee certificate with full directions accompanies each Inkograph and is your absolute protection.

An Instrument of Refinement

In appearance, quality, workmanship and material it is the equal of writing instruments which sell for a great deal more. It's beautifully highly polished finest quality of black, hard rubber, it's 14 Kt. solid gold point and feed, safety screw cap, self-filling lever and clip make it an instrument of distinctive elegance and refinement. Each Inkograph is designed and finished to please the eye and fit the hand of all.

You Who Are Dissatisfied With Your Fountain Pen

Try the Inkograph—remember, all we ask you to do is try it, for if it does not prove thoroughly satisfactory and if it is not handier and does not write smoother and is not far superior to any fountain pen you ever owned, whether it cost $5, $6, $7 or $8, return the Inkograph to us and we'll refund your money—no questions asked.

That hard smooth round ball-like point, which glides with ease over the coarsest paper and makes possible writing in ink as rapidly as with the softest lead pencil.

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NEW YORK, N. Y.

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$1000 REWARD

to anybody who can prove that these testimonials were solicited by us.

Inkograph has proven so satisfactory and has elicited considerable favorable comment am enclosing money order, please send me three more. T. J. Trow, Traveling Claim Agent, Joplin, Mo.

The Inkograph fully justifies all claims you make. I own a Waterman but Inkograph is far preferable. Frank R. Sargent, Oakland, Calif.

You have one of the best writing instruments I ever used regardless of price. I use the lowest grade stationery and there is never a blot or scratch because of its round smooth point. It is a wonderful invention. L. H. Orley, Albano, Va.

Oh boy, I am tickled skinny to have the Inkograph, it's a darling. I can now make carbon copies in taking orders and send original in ink to factory instead of a penciled sheet. It surely flows over the paper as if it was grease instead of ink. No trouble at all and a thing I could not do before to trace straight lines very fine and clean. No smear, no muss of any kind. It's just great. E. A. Simms, Jersey City, N. J.

My Inkograph is the smoothest writing instrument with which I have ever written. That is saying a lot. I am a teacher by profession. I have a $7.00 pen and another that cost more than the Inkograph, but Inkograph is better than either. It is the greatest improvement in writing instruments since the Babylonians recorded their thoughts on clay tablets with a triangular pointed reed. John R. Atwell, Chadwick, N. C.

My Inkograph is the first and only writing utensil I ever owned that I can use with pleasure. To be without it for any time would upset my business day. It has always worked perfectly. I have never had any difficulty with it. Arthur L. Fox, Centerville, Mich.

I am a bank teller, have used all kinds of fountain pens but can honestly say for my work I never found a pen so easy and tireless to write. You can pick it up any time in any position and write immediately and all numbers and words will be the same. Try and do it with any other pen. My buddies all agree that it is best for our work. O. R. Morley, Allentown, Pa.

Delighted: It writes bully—you have invented a pen that is perfection. It is so much more rapid than my $9.00 fountain pen. I wish you abundant success. S. L. Carlton, Aurora, Ill.

I am very well pleased with my Inkograph. It is just what I have been looking for. I have had several ink pencils but nothing like the Inkograph; it writes like the point was greased and it makes no difference what kind of paper, it is fine for shipping tags. S. T. Jarrett, Harrisville, W. Va.

The Inkograph is all that you claim it to be. Enclosed find order for two. Robert Heller, Craigsville, Pa.

The Inkograph, I am thoroughly convinced, is the best writing instrument I have ever used. It is sure, sane and clean and always ready to use. I am very well pleased with it. J. E. Rampton, Pensacola, Fla.

Received my Inkograph. Am surprised to know how well I can write with it. The Inkograph is a wonderful little writer, it's my friend now for good penmanship. I am writing this letter with it; can you tell the difference between Inkograph and pen letters? I Can is my answer. C. R. Fuller, Patterson, Mo.

I received my Inkograph with which I am writing this letter. I have purchased at least one dozen ink pencils. Yours seems to be the only one that gives perfect satisfaction. I believe you have solved the problem of the perfect writing instrument. Dr. Richard T. McLaury, Dunkirk, Ind.

The Inkograph is truly the best pen I ever had the pleasure to use barring no price or make of pen, after I take into consideration the high price I usually paid for a Parker, or a Waterman pen, I cannot see how such a low priced pen as the Inkograph can be put on the market and give such unusual service. Harvey L. Winston, Brentwood, Calif.

In making out local requisitions, it is necessary to make an original and two carbon copies on very heavy paper, and the Inkograph does this twice as well as the hardest indelible pencil, and is much neater and the original is much more legible. Wm. L. Fortney, Placerville, Ia.

Your Inkograph is everything you state. It is just wonderful. So send me two more. Arthur Olcott, Tucker, La.

Gave pen thorough tryout. Enclosed find sample of work I have to perform. Have been using pencil. Never got entire satisfaction. Hard pencil makes original too pale and soft pencil makes poor copy. I am highly pleased. S. M. Cooper, Inquiry Division, P. O., South Bend, Ind.

I found the Inkograph all you represent it to be and I was very well satisfied with it. I made a great mistake when I bought the Inkograph, as I did not take out Loss or Theft Insurance on the pen, for the pen is gone. I am writing this to ask that you send me another Inkograph by return mail, charges C.O.D. I can recommend the Inkograph very highly to anyone who needs a pen which will stand up under very hard usage. George B. Moore, Columbia, Fla.

It sure has improved my hand writing—I never took home any medals for penmanship but I can almost read my own writing since I got this pen. M. F. Johnson, Medina, Wis.

I want to thank you for the return of my Inkograph pen, which you repaired for me. I feel rather lost without this pen in my pocket. I prefer it to any pen I ever carried principally because of the ease with which one can write with it, not having to be careful whether you slide the pen to the North, East, South or West, it flows freely in all directions. Wm. B. Brown, New York, N. Y.

Received my Inkograph and same is filling a long-felt want. Kindly send two more of the same style by parcel post collect as soon as possible. Theodore Priestley, Akron, Ohio.

I bought one of your pens a year ago. You sure build the best pen on the market to my notion. Frank R. Ellsworth, Fargo, N. D.

I wouldn't take $5.00 for the pen I am writing this letter with. I have a good fountain pen but don't write any more with it. I am proud of the Inkograph and that I can say this to you and mean every word of it. R. H. Wilson, Beckley, W. Va.

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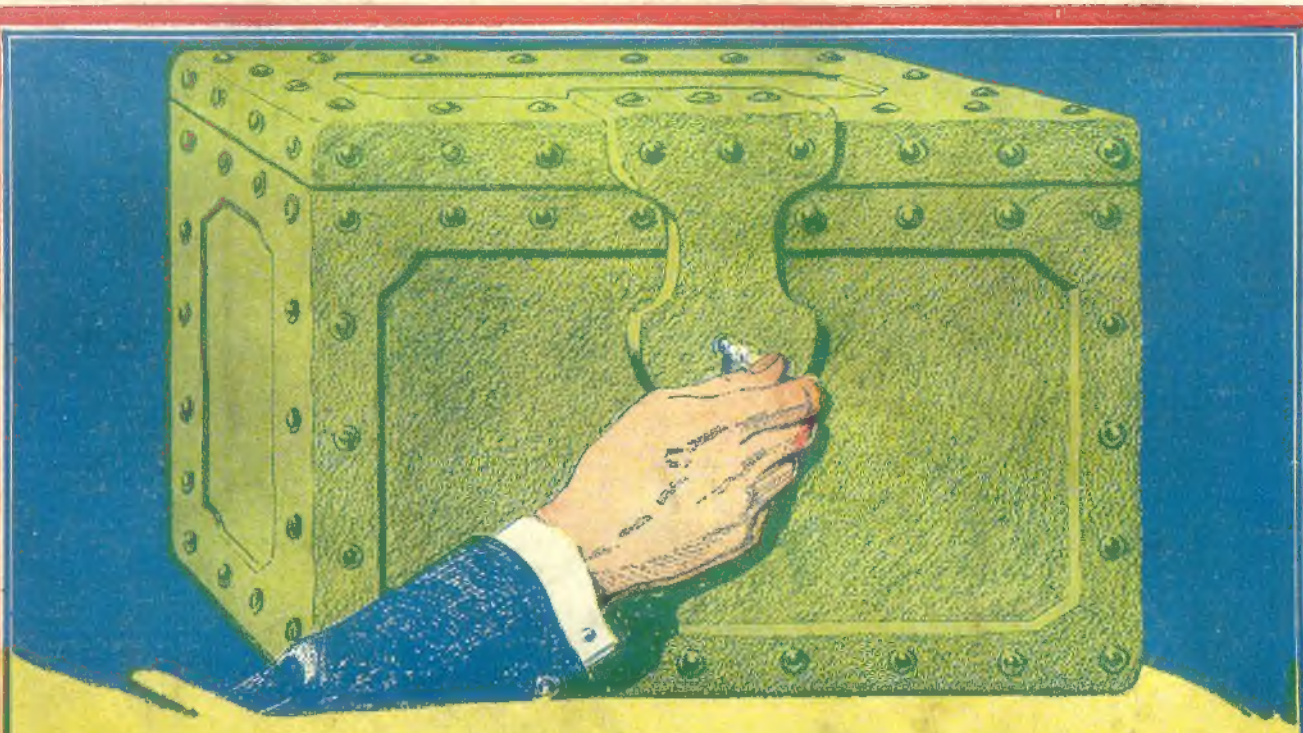

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